

Access DB# 115317

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Amanda Walk Examiner #: 75063 Date: 2/26/2004
Art Unit: 1752 Phone Number 30 21337 Serial Number: 10/091373
Mail Box and Bldg/Room Location: 220 9064 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Bio Sheet Attached

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search for the paymer of claim 1 (attached).

Thank you.

[Handwritten signature]

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: _____	NA Sequence (#) _____	STN _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: _____	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: _____	Other _____	Other (specify) _____



STIC Search Report

EIC 1700

STIC Database Tracking Number: 115597

TO: Amanda Walke
Location: 9064
Art Unit : 1752
March 4, 2004

Case Serial Number: 10/091373

From: Barba Koroma
Location: EIC 1700
REM EO4 A30
Phone: 571 272 2546

barba.koroma@uspto.gov

Search Notes

Examiner Walke,
Please find attached results of the search you requested. Various components of the claimed invention as spelt out in the claims and search request form were searched in REGISTRY and CAPLUS databases.

For your convenience, titles of hits have been listed to help you peruse the results set quickly. This is followed by a detailed printout of records. Please let me know if you have any questions.
Thanks.



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28



=> file reg

FILE 'REGISTRY' ENTERED AT 10:57:06 ON 04 MAR 2004
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 3 MAR 2004 HIGHEST RN 658036-92-1
DICTIONARY FILE UPDATES: 3 MAR 2004 HIGHEST RN 658036-92-1

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2003

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> file caplus

FILE 'CAPLUS' ENTERED AT 10:57:10 ON 04 MAR 2004
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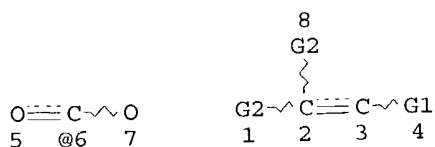
FILE COVERS 1907 - 4 Mar 2004 VOL 140 ISS 10
FILE LAST UPDATED: 3 Mar 2004 (20040303/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

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L1 STR

KOROMA EIC1700



VAR G1=CN/6

VAR G2=H/F

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

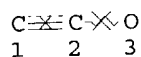
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

L2 STR



NODE ATTRIBUTES:

NSPEC IS RC AT 1

NSPEC IS RC AT 2

NSPEC IS RC AT 3

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE

L3 SCR 2043

L4 64646 SEA FILE=REGISTRY SSS FUL L1 AND L2 AND L3

L5 49144 SEA FILE=CAPLUS ABB=ON PLU=ON L4

L15 14695 SEA FILE=CAPLUS ABB=ON PLU=ON L5 (L) COPOLYMER

L17 479 SEA FILE=CAPLUS ABB=ON PLU=ON L15 AND PHOTORESISTS

L19 376 SEA FILE=CAPLUS ABB=ON PLU=ON L17 AND (PREP OR SPN OR

IMF)/RL

L20 100 SEA FILE=CAPLUS ABB=ON PLU=ON L19 AND CHEMICAL? (4A) AMPLIF?

L22 76 SEA FILE=CAPLUS ABB=ON PLU=ON L20 AND RESIST?

L24 76 SEA FILE=CAPLUS ABB=ON PLU=ON L22 AND (PREP OR SPN OR IMF OR

USE)/RL

L25 76 SEA FILE=CAPLUS ABB=ON PLU=ON L24 AND COPOLYMER?

L26 58 SEA FILE=CAPLUS ABB=ON PLU=ON L25 AND ACRYL?

=> d ti 1-58

KOROMA EIC1700

- L26 ANSWER 1 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive resin compositions for **chemically amplified resists**
- L26 ANSWER 2 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Photoacid generators for **chemically amplified resists** and their use in **resists** and pattern formation
- L26 ANSWER 3 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI N-sulfonyloxydicarboxyimides as photoacid generators for **chemically amplified resists** and patterning method
- L26 ANSWER 4 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Novel sulfonyldiazomethanes, photoacid generators, **resist** compositions, and patterning process
- L26 ANSWER 5 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Photoacid generators and **chemically amplified resist** compositions for patterning process
- L26 ANSWER 6 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Copolymer** for use in **chemical amplification resists**
- L26 ANSWER 7 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Anthracene derivative and radiation-sensitive resin composition
- L26 ANSWER 8 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Copolymer**, polymer mixture, and radiation-sensitive resin composition
- L26 ANSWER 9 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Negative **resist** materials and their patterning with high-energy ray or electron beam
- L26 ANSWER 10 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemically amplified positive resist** compositions with suppressed variation in line width on on high-reflection substrates
- L26 ANSWER 11 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemically amplified positive resist** compositions having decreased variation in line width and good performances on uneven-surfaced substrates
- L26 ANSWER 12 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Positive radiation-sensitive compositions having high sensitivity and high resolution
- L26 ANSWER 13 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

- TI Electron beam and UV lithographic pattern formation method using **chemically-amplified resist**
- L26 ANSWER 14 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemically-amplified** negative-working **resist** compositions for processing with electron beam or x-ray
- L26 ANSWER 15 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemically-amplified** negative-working **resist** compositions for processing with electron beam or x-ray
- L26 ANSWER 16 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Alkenylphenol-based **copolymers** bearing acid-sensitive segments and selectively protected hydroxy-containing segments for **chemically amplified resists** and their preparation
- L26 ANSWER 17 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Synergic effect of acetal-based resin by blending with poly[4-hydroxystyrene-co-tert-butyl **acrylate**-co-4-(3-cyano-1,5-di-tert-butyl carbonylpentylstyrene (P(HS-TBA-CBPS)) on the profiles of 248 nm **chemically amplified resist**
- L26 ANSWER 18 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Positive **resist** for KrF excimer laser lithography
- L26 ANSWER 19 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Carbazole derivative and **chemically amplified** radiation-sensitive resin composition
- L26 ANSWER 20 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Non-**chemically amplified** water and aqueous base developable negative photoresist
- L26 ANSWER 21 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI High-performance **resist** materials for ArF excimer laser and electron-beam lithography
- L26 ANSWER 22 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Polymers and their use in **resists** and pattern formation
- L26 ANSWER 23 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Positively working **resist** composition containing fluoropolymer for high resolution
- L26 ANSWER 24 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive **chemically amplified** positive **resists** and lithography using the same
- L26 ANSWER 25 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Resist** compositions comprising fluorinated vinyl phenol-**acrylonitrile** resin and patterning process

- L26 ANSWER 26 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Positive-working **chemically amplified** photoresist materials containing polymer made of hydroxyvinylanthracene and monomer having modified carboxyl group
- L26 ANSWER 27 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Positive-working **chemically amplified** photoresist materials containing polymer made of hydroxyvinylanthracene and of monomers having modified carboxyl group
- L26 ANSWER 28 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Blends of hydroxystyrene polymers for use in **chemically amplified** positive **resist** formulations
- L26 ANSWER 29 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Novel polymers and photoresist compositions comprising electronegative groups
- L26 ANSWER 30 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemically amplified** positive-working photoresist composition for fabrication of semiconductor devices such as super LSI
- L26 ANSWER 31 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Styrene polymer having acid-sensitive dissociable organic groups for radiation-sensitive **chemically amplified resist** resin composition
- L26 ANSWER 32 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemical amplifying** type positive **resist** composition and sulfonium salt
- L26 ANSWER 33 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Positive **resist** composition and onium salts of saccharin derivatives
- L26 ANSWER 34 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemically amplified** positive **resist** compositions with improved resolution, pattern profile and focal latitude for deep UV lithography
- L26 ANSWER 35 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemically amplified** positive **resist** compositions with improved resolution, pattern profile and focal latitude for deep UV lithography
- L26 ANSWER 36 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive resin composition
- L26 ANSWER 37 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Electron beam or x-ray negative-working **resist** composition

- L26 ANSWER 38 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive **chemically amplified resist** composition containing **copolymer** of **acrylic** monomer and styrene derivative monomer
- L26 ANSWER 39 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive **chemically amplified resist** composition containing specific **copolymer**
- L26 ANSWER 40 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive resin composition comprising N-sulfonyloxyimide compound as an acid-generating agent for **chemically amplified resists**
- L26 ANSWER 41 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Resist** resin for **chemically amplified resist** composition and method for pattern formation using same
- L26 ANSWER 42 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI A **resist** composition
- L26 ANSWER 43 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Oxime derivates and their use as photosensitive acid donors in **chemically amplified photoresist** compositions.
- L26 ANSWER 44 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive **chemically amplified** positive-working **resist** resin composition
- L26 ANSWER 45 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Hydroxystyrene **copolymers** and **photoresists** comprising same
- L26 ANSWER 46 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemically amplified** photoresist composition
- L26 ANSWER 47 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Photosensitive polymer for **chemically amplified resists** and **chemically amplified resist** composition containing same
- L26 ANSWER 48 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive composition for **chemically amplified** photoresist
- L26 ANSWER 49 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Method using photoresist composition and articles produced therewith
- L26 ANSWER 50 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Novel dissolution inhibitors based on calixarene derivatives for use in **chemical amplification resists**

L26 ANSWER 51 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive resin composition useful as **chemically amplified positive-working resist**

L26 ANSWER 52 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Composition for antireflection or light absorption film and compounds for use in same

L26 ANSWER 53 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemical amplification** and positive-working type **resist** laminate for manufacturing semiconductors and patterning using same

L26 ANSWER 54 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemical amplification**-type positive-working radiation-sensitive **resist** composition

L26 ANSWER 55 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Environmentally stable **chemically amplified positive resist** containing vinyl lactam terpolymers

L26 ANSWER 56 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Chemically amplified resists** containing vinyl lactam derivatives

L26 ANSWER 57 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Radiation-sensitive resin compositions for **chemically amplified resists**

L26 ANSWER 58 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
TI Manufacture of vinylphenol **copolymers** for **chemically amplified photoresists**

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L26 ANSWER 1 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:37343 CAPLUS
DOCUMENT NUMBER: 140:102031
TITLE: Radiation-sensitive resin compositions for **chemically amplified resists**
INVENTOR(S): Nagai, Tomoki; Miyaji, Masaaki
PATENT ASSIGNEE(S): JSR Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 35 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

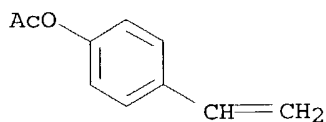
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004012798 A2 20040115 JP 2002-165978 20020606
 PRIORITY APPLN. INFO.: JP 2002-165978 20020606
 OTHER SOURCE(S): MARPAT 140:102031
 AB The compns. contain R1OSO2R2 (R1 = monovalent acid-dissociation group; R2 =
 monovalent organic group), alkali-insol. resins capable to become
 alkali-soluble
 by acids, and radiation-sensitive acid generators. The compns. are
 suitable for KrF excimer laser, ArF excimer laser, F2 excimer layer, etc.,
 and show high transparency to radiation and resolution
 IT 221549-67-3DP, p-Acetoxystyrene-tert-butyl **acrylate**
 -styrene **copolymer**, hydrolyzed
 RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered
 material use); **PREP (Preparation)**; USES (Uses)
 (radiation-sensitive compns. containing sulfonates, alkali-insol. resins,
 and acid generators for **chemical amplified**
resists)
 RN 221549-67-3 CAPLUS
 CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and
 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 2628-16-2

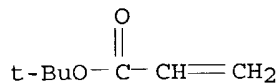
CMF C10 H10 O2



CM 2

CRN 1663-39-4

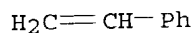
CMF C7 H12 O2



CM 3

CRN 100-42-5

CMF C8 H8



- IC ICM G03F007-004
ICS C08F012-24; G03F007-039; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 37
- ST radiation sensitive resin **chem amplified resist**; **resist** sulfonate alkali insol resin acid generator
- IT **Photoresists**
(UV, far-UV; radiation-sensitive compns. containing sulfonates, alkali-insol. resins, and acid generators for **chemical amplified resists**)
- IT **Resists**
(radiation-sensitive; radiation-sensitive compns. containing sulfonates, alkali-insol. resins, and acid generators for **chemical amplified resists**)
- IT 84563-54-2, Bis(p-tert-butylphenyl)iodoniumtrifluoromethanesulfonate 133710-62-0 138529-81-4, Bis(cyclohexanesulfonyl)diazomethane
RL: CAT (Catalyst use); USES (Uses)
(acid generator; radiation-sensitive compns. containing sulfonates, alkali-insol. resins, and acid generators for **chemical amplified resists**)
- IT 109-92-2DP, Ethyl vinyl ether, reaction products with butoxystyrene-hydroxystyrene **copolymer** 123589-22-0DP, p-tert-Butoxystyrene-p-hydroxystyrene **copolymer**, reaction products with Et vinyl ether **221549-67-3DP**, p-Acetoxytyrene-tert-butyl **acrylate**-styrene **copolymer**, hydrolyzed 406198-64-9DP, p-Acetoxytyrene-p-tert-butoxytyrene-styrene **copolymer**, hydrolyzed
RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(radiation-sensitive compns. containing sulfonates, alkali-insol. resins, and acid generators for **chemical amplified resists**)
- IT 115726-23-3
RL: MOA (Modifier or additive use); USES (Uses)
(radiation-sensitive compns. containing sulfonates, alkali-insol. resins, and acid generators for **chemical amplified resists**)

L26 ANSWER 2 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2004:20123 CAPLUS

DOCUMENT NUMBER: 140:102018

TITLE: Photoacid generators for **chemically amplified resists** and their use in **resists** and pattern formation

INVENTOR(S): Osawa, Yoichi; Kobayashi, Katsuhiko; Takemura, Katsuya; Tsuchiya, Junji; Maeda, Kazuki

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 76 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004004551	A2	20040108	JP 2003-27861	20030205
PRIORITY APPLN. INFO.:			JP 2002-80566	A 20020322
OTHER SOURCE(S):		MARPAT 140:102018		

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

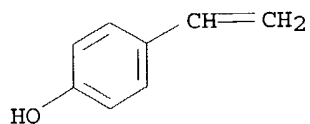
AB The photoacid generators are represented by I, pC(EWG):NOSO₂C₆H₄-rR'rOn(CH₂)mMe, q[C(EWG):NOSO₂C₆H₄-rR'rOn(CH₂)mMe]₂, or II [R' = H, F, C₁-4 alkyl, alkoxy; R = Cl, R'; n = 0, 1; m = 3-11; r = 0-4; EWG = cyano, nitro, C₁-3 perfluoroalkyl; p = C₁-10 alkyl, C₆-12 aryl; q = C₁-10 alkylene, C₆-18 arylene; G', G'' = S, CH:CH; G' and G'' are not S at the same time; G = H, p; two G may form ring]. Alternatively, the photoacid generators are O-arylsulfonyloximes and generate long-chain alkylbenzenesulfonic acids or alkoxybenzenesulfonic acids of HO₃SC₆H₄-rR'rOn(CH₂)mMe (R', n, m, and r are same as above) under irradiation with UV, far-UV, electron beam, x-ray, excimer laser, γ-ray, or synchrotron radiation. The claimed **chemical amplified** (pos.) **resists** contain the above photoacid generators and resins changing solubility to alkali development solns. by acids. Patterns are formed by applying the **resists** on substrates, heating, exposing through photomasks by ≤300 nm-wavelength high-energy beams or electron beams, optionally heating, and developing with solns.

IT 159296-87-4, tert-Butyl acrylate-p-hydroxystyrene copolymer 326925-68-2, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene copolymer 345580-95-2, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene-styrene copolymer
 RL: TEM (Technical or engineered material use); USES (Uses)
 (resists containing; photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

RN 159296-87-4 CAPLUS
 CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

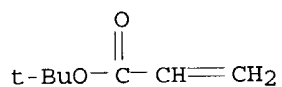
CRN 2628-17-3
 CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



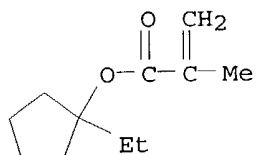
RN 326925-68-2 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1

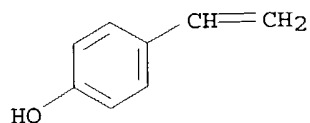
CMF C11 H18 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



RN 345580-95-2 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with

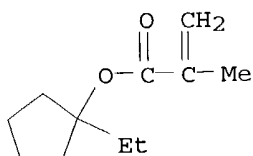
KOROMA EIC1700

ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1

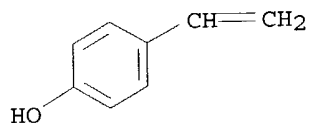
CMF C11 H18 O2



CM 2

CRN 2628-17-3

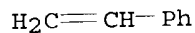
CMF C8 H8 O



CM 3

CRN 100-42-5

CMF C8 H8



IC ICM G03F007-004

ICS C09K003-00; G03F007-039; H01L021-027; H01L021-30

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 25, 37

ST arylsulfonyloxime photoacid generator **resist** pattern formation

IT Photolithography

Photoresists

(UV; photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

IT Electron beam lithography

Electron beam **resists**

Negative **photoresists**

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Positive photoresists

X-ray lithography

X-ray resists

(photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

IT Resists

(pos.-working; photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

IT 1132-66-7P, Hexyloxybenzene 1145-45-5P 80227-88-9P 110490-51-2P,
1-n-Hexyloxy-2-isopropyl-5-methylbenzene 642460-59-1P 642460-60-4P

RL: **IMF (Industrial manufacture)**; **RCT (Reactant)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**; **RCT (Reactant or reagent)**

(photoacid generator from; photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

IT 89-83-8, Thymol 95-45-4, Dimethylglyoxime 98-68-0,
4-Methoxybenzenesulfonyl chloride 108-95-2, Phenol, reactions
111-25-1, n-Hexylbromide 576-26-1, 2,6-Xylenol 4552-50-5 7790-94-5,
Chlorosulfonic acid 267420-08-6

RL: **RCT (Reactant)**; **RCT (Reactant or reagent)**

(photoacid generator from; photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

IT 39153-56-5, Bis(2,4-dimethylphenylsulfonyl)diazomethane 138529-81-4,
Bis(cyclohexylsulfonyl)diazomethane 195723-94-5, (4-tert-
Butoxyphenyl)diphenylsulfonium 10-camphor-sulfonate

RL: **CAT (Catalyst use)**; **USES (Uses)**

(photoacid generator; photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

IT 219651-38-4P 219651-50-0P 642460-61-5P 642460-62-6P 642460-63-7P
642460-64-8P

RL: **CAT (Catalyst use)**; **IMF (Industrial manufacture)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**; **USES (Uses)**

(photoacid generator; photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

IT 95-87-4, 2,5-Xylenol 825-52-5, 2-Hydroxyimino-2-phenylacetonitrile
2189-60-8, Octylbenzene

RL: **RCT (Reactant)**; **RCT (Reactant or reagent)**

(photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

IT 54997-91-0P, 4-Octylbenzenesulfonyl chloride 642460-71-7P

RL: **RCT (Reactant)**; **SPN (Synthetic preparation)**; **PREP (Preparation)**; **RCT (Reactant or reagent)**

(photoacid generators for **chemical amplified resists** and pattern formation with high-energy beams or electron beams)

IT 642460-65-9P 642460-66-0P 642460-67-1P 642460-68-2P 642460-69-3P
 642460-70-6P 642460-72-8P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (photoacid generators for **chemical amplified**
resists and pattern formation with high-energy beams or
 electron beams)

IT 102-82-9, Tributylamine 3235-51-6, Tris(2-methoxyethyl)amine
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material
 use); USES (Uses)
 (resists containing; photoacid generators for **chemical**
amplified resists and pattern formation with
 high-energy beams or electron beams)

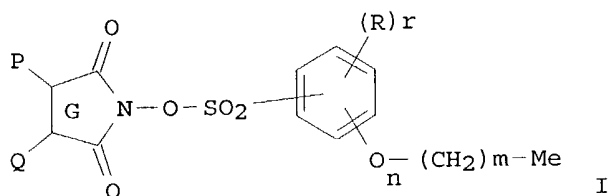
IT 69-72-7, Salicylic acid, uses 126-00-1, 4,4-Bis(4-hydroxyphenyl)valeric
 acid 24979-70-2D, p-Hydroxystyrene homopolymer, acetyl, butoxycarbonyl,
 or ethoxyethyl derivs. 71545-61-4D, polymers with polyhydroxystyrene
 ethoxyethyl derivs. 159296-87-4, tert-Butyl acrylate
 -p-hydroxystyrene copolymer 326925-68-2,
 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene copolymer
 345580-95-2, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene-
 styrene copolymer 552840-49-0 552840-50-3 552840-52-5D,
 Indene-p-hydroxystyrene copolymer, butoxycarbonyl derivs.
 552840-54-7
 RL: TEM (Technical or engineered material use); USES (Uses)
 (resists containing; photoacid generators for **chemical**
amplified resists and pattern formation with
 high-energy beams or electron beams)

IT 97-64-3, Ethyl lactate 84540-57-8, Propyleneglycol methyl ether acetate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (solvent, **resists** containing; photoacid generators for
chemical amplified resists and pattern
 formation with high-energy beams or electron beams)

L26 ANSWER 3 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2004:19898 CAPLUS
 DOCUMENT NUMBER: 140:84638
 TITLE: N-sulfonyloxycarboxyimides as photoacid generators
 for **chemically amplified**
resists and patterning method
 INVENTOR(S): Osawa, Yoichi; Kobayashi, Katsuhiko; Maeda, Kazunori;
 Miyakoshi, Hiroshi; Tanaka, Yoshio
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 58 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004002291	A2	20040108	JP 2002-364156	20021216
PRIORITY APPLN. INFO.:			JP 2001-393187 A	20011226

OTHER SOURCE(S): MARPAT 140:84638
GI



AB The N-sulfonyloxycarboxyimides are I (R = H, F, C1-4 (cyclo)alkyl, C1-4 alkoxy; G = single bond, double bond, P, Q = H, C1-10 alkyl; P and Q may form alicyclic or heterocyclic structures or aromatic ring; m = 3-11; n = 0, 1; r = 0-4). The **resists** contain polymers changing alkali solubility by acid action and the N-sulfonyloxycarboxyimides generating acids by radiation irradiation. The **resists** are patternwise exposed with radiation at ≤ 300 nm or electron beam via photomasks. The **resists** remain no foreign substances on developing and stripping.

IT 159296-87-4, tert-Butyl **acrylate**-p-hydroxystyrene **copolymer** 326925-68-2, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene **copolymer** 345580-95-2, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene-styrene **copolymer**
RL: TEM (Technical or engineered material use); USES (Uses)

(N-sulfonyloxycarboxyimides as photoacid generators for far-UV or electron beam **resists** remaining no foreign substances on stripping)

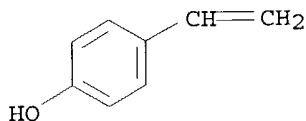
RN 159296-87-4 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

CMF C8 H8 O

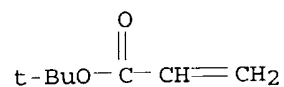


CM 2

CRN 1663-39-4

CMF C7 H12 O2

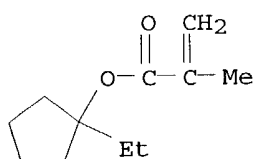
KOROMA EIC1700



RN 326925-68-2 CAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
 4-ethenylphenol (9CI) (CA INDEX NAME)

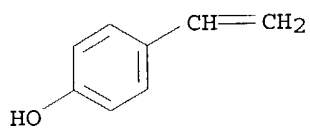
CM 1

CRN 266308-58-1
 CMF C11 H18 O2



CM 2

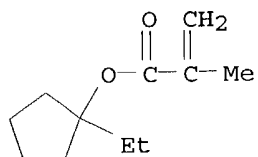
CRN 2628-17-3
 CMF C8 H8 O



RN 345580-95-2 CAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
 ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

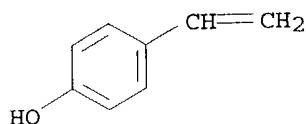
CRN 266308-58-1
 CMF C11 H18 O2



CM 2

CRN 2628-17-3

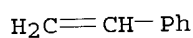
CMF C8 H8 O



CM 3

CRN 100-42-5

CMF C8 H8



IC ICM C07D207-408

ICS C07D209-76; C07D491-18; C08F212-14; G03F007-004; G03F007-039;
H01L021-027; H01L021-30

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 27

ST sulfonyloxydicarboxyimide photoacid generator **chem**
amplified resist; far UV **resist**
sulfonyloxydicarboxyimide photoacid generator; electron beam
resist sulfonyloxydicarboxyimide photoacid generator;
hexyloxybenzenesulfonyloxy norbornenedicarboximide photoacid generator
resist

IT Electron beam lithography

Electron beam **resists**

Photolysis catalysts

(N-sulfonyloxydicarboxyimides as photoacid generators for far-UV or
electron beam **resists** remaining no foreign substances on
stripping)

IT Photolithography

Photoresists

(UV, far-UV; N-sulfonyloxydicarboxyimides as photoacid generators for
far-UV or electron beam **resists** remaining no foreign
substances on stripping)

IT 640276-37-5P 640276-38-6P 640276-39-7P 640276-40-0P 640276-41-1P
640276-42-2P 640276-43-3P 640276-44-4P 640276-45-5P 640276-46-6P
640276-47-7P

RL: CAT (Catalyst use); **IMF** (Industrial manufacture); TEM
(Technical or engineered material use); **PREP** (Preparation); USES
(Uses)

- (N-sulfonyloxydicarboxyimides as photoacid generators for far-UV or electron beam **resists** remaining no foreign substances on stripping)
- IT 1132-66-7P, Hexyloxybenzene 1145-45-5P
 RL: **IMF (Industrial manufacture)**; RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
 (N-sulfonyloxydicarboxyimides as photoacid generators for far-UV or electron beam **resists** remaining no foreign substances on stripping)
- IT 108-95-2, Phenol, reactions 111-25-1, Hexyl bromide 111-83-1, Octyl bromide 576-26-1, 2,6-Dimethylphenol 1077-16-3 2189-60-8, 1-Phenyloctane 6066-82-6, N-Hydroxysuccinimide 21715-90-2, N-Hydroxy-5-norbornene-2,3-dicarboximide 55029-20-4
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (N-sulfonyloxydicarboxyimides as photoacid generators for far-UV or electron beam **resists** remaining no foreign substances on stripping)
- IT 24979-70-2D, p-Hydroxystyrene homopolymer, ethoxyethyl ether 130501-59-6 147625-42-1D, ethoxyethyl ether 159296-87-4, tert-Butyl acrylate-p-hydroxystyrene copolymer 326925-68-2, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene copolymer 345580-95-2, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene-styrene copolymer 369385-37-5D, ethoxyethyl ether 406909-44-2 552840-49-0 595558-21-7 640277-35-6, p-Hydroxystyrene-indene copolymer tert-butoxycarboxylate ester
 RL: TEM (Technical or engineered material use); USES (Uses)
 (N-sulfonyloxydicarboxyimides as photoacid generators for far-UV or electron beam **resists** remaining no foreign substances on stripping)

L26 ANSWER 4 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:950589 CAPLUS
 DOCUMENT NUMBER: 140:21274
 TITLE: Novel sulfonyldiazomethanes, photoacid generators, **resist** compositions, and patterning process
 INVENTOR(S): Kobayashi, Katsuhiko; Ohsawa, Youichi; Hasegawa, Koji; Yoshihara, Takao; Maeda, Kazunori; Fujii, Toshihiko
 PATENT ASSIGNEE(S): Japan
 SOURCE: U.S. Pat. Appl. Publ., 35 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003224298	A1	20031204	US 2003-426623	20030501
JP 2004026809	A2	20040129	JP 2003-118155	20030423
			JP 2002-129681	A 20020501

PRIORITY APPLN. INFO.:
 OTHER SOURCE(S): MARPAT 140:21274

AB Sulfonyldiazomethane compds. containing a long-chain alkylcyclohexyl group are

novel and useful as photoacid generators. **Chemical amplification** type photoresist compns. comprising the same are suited for microfabrication because of many advantages including improved resolution, improved focus latitude, minimized line width variation or shape degradation even on long-term PED, minimized debris left after coating, development and peeling, and improved pattern profile after development.

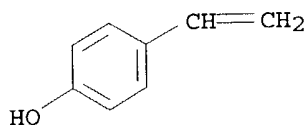
IT 159296-87-4, tert-Butyl **acrylate**-p-hydroxystyrene
copolymer 326925-68-2, 1-Ethylcyclopentyl
methacrylate-p-hydroxystyrene **copolymer**
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)

(resin; and sulfonyldiazomethanes photoacid generators for
resist compns.)

RN 159296-87-4 CAPLUS
CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol
(9CI) (CA INDEX NAME)

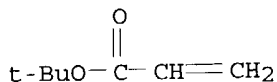
CM 1

CRN 2628-17-3
CMF C8 H8 O



CM 2

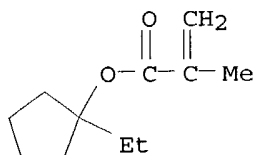
CRN 1663-39-4
CMF C7 H12 O2



RN 326925-68-2 CAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

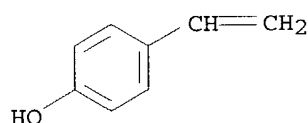
CRN 266308-58-1
CMF C11 H18 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



IC ICM G03C005-00

ICS C07C317-26

NCL 430313000; 534838000

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

ST sulfonyldiazomethanes photoacid generator photoresist compn patterning process

IT **Photoresists**

(novel sulfonyldiazomethanes photoacid generators for **resist** compns.)

IT 14159-45-6, Bis(4-methylphenylsulfonyl)diazomethane 39153-56-5, Bis(2,4-dimethylphenylsulfonyl)diazomethane 138529-81-4, Bis(cyclohexylsulfonyl)diazomethane 138529-84-7, Bis(tert-butylsulfonyl)diazomethane 195723-94-5, (4-tert-Butoxyphenyl)diphenylsulfonium 10-camphorsulfonate

RL: TEM (Technical or engineered material use); USES (Uses)

(novel sulfonyldiazomethanes, photoacid generators, **resist** compns., and patterning process)

IT 149552-10-3P 631897-79-5P 631897-83-1P

RL: PRP (Properties); RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)

(preparation of novel sulfonyldiazomethanes photoacid generators for **resist** compns.)

IT 631897-82-0P 631897-86-4P 631897-89-7P

RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(preparation of novel sulfonyldiazomethanes photoacid generators for **resist** compns.)

IT 941-55-9, p-Toluenesulfonylazide 91175-02-9 179245-36-4 203132-72-3

KOROMA EIC1700

RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of novel sulfonyldiazomethanes photoacid generators for
resist compns.)

IT 631897-80-8P 631897-81-9P 631897-84-2P 631897-85-3P 631897-87-5P
631897-88-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(preparation of novel sulfonyldiazomethanes photoacid generators for
resist compns.)

IT 24979-70-2D, Poly(p-hydroxystyrene), hydroxyl group protected
159296-87-4, tert-Butyl **acrylate**-p-hydroxystyrene
copolymer 326925-68-2, 1-Ethylcyclopentyl
methacrylate-p-hydroxystyrene **copolymer** 552840-52-5,
Indene-p-hydroxystyrene **copolymer** 552840-54-7
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)

(resin; and sulfonyldiazomethanes photoacid generators for
resist compns.)

L26 ANSWER 5 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:912695 CAPLUS

DOCUMENT NUMBER: 139:401547

TITLE: Photoacid generators and **chemically**
amplified resist compositions for
patterning process

INVENTOR(S): Ohsawa, Youichi; Kobayashi, Katsuhiko; Takemura,
Katsuya; Tsuchiya, Junji; Maeda, Kazunori

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 49 pp.

CODEN: USXXCO

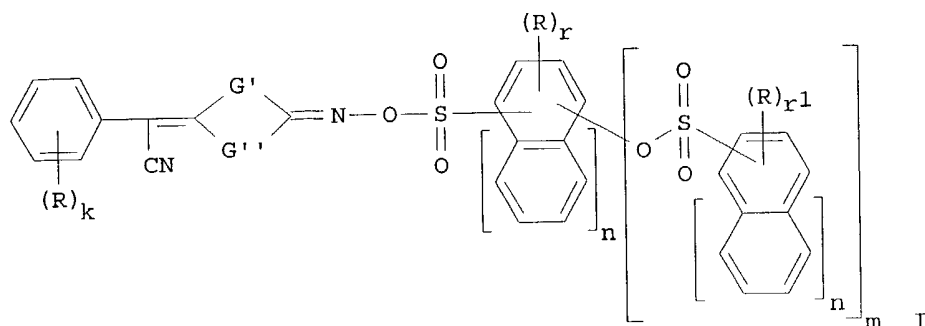
DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003215738	A1	20031120	US 2003-393006	20030321
JP 2004004614	A2	20040108	JP 2003-71473	20030317
PRIORITY APPLN. INFO.:			JP 2002-80649	A 20020322
OTHER SOURCE(S):		MARPAT 139:401547		
GI				



AB Photoacid generators are provided by O-arylsulfonyl-oxime compds. having general formula I (R = H, F, Cl, NO₂, alkyl, alkoxy; n = 0, 1; m = 1, 2; r = 0-4; r₁ = 0-5; k = 0-4; G₁, G₂ = S, -CH=CH-). **Chemical amplified resist** compns. comprising the photoacid generators have many advantages including improved resolution, improved focus latitude, minimized line width variation or shape degradation even on long-term PED, and improved pattern profile after development. Because of high resolution, the compns. are suited for microfabrication, especially by deep UV lithog.

IT 159296-87-4, p-Hydroxystyrene-tert-butyl **acrylate**
copolymer 326925-68-2, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate **copolymer**

RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generators and **chemical amplified resist** compns. for patterning process)

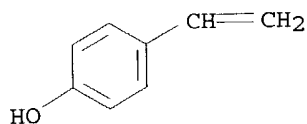
RN 159296-87-4 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

CMF C8 H8 O

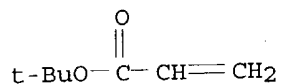


CM 2

CRN 1663-39-4

CMF C7 H12 O2

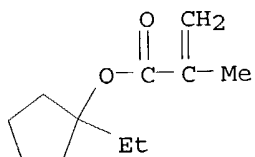
KOROMA EIC1700



RN 326925-68-2 CAPLUS
 CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
 4-ethenylphenol (9CI) (CA INDEX NAME)

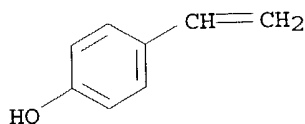
CM 1

CRN 266308-58-1
 CMF C11 H18 O2



CM 2

CRN 2628-17-3
 CMF C8 H8 O



IC ICM G03F007-004
 ICS C07C309-76; C07D333-36
 NCL 430270100; 430921000; 430919000; 430326000; 549063000; 558047000
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 38
 ST photolithog UV photoacid generator **chem amplified**
resist compn
 IT Photolithography
 (UV; photoacid generators and **chemical amplified**
resist compns. for patterning process)
 IT **Photoresists**
 (photoacid generators and **chemical amplified**
resist compns. for patterning process)
 IT 102-82-9, Tri-n-butylamine 3235-51-6, Tris(2-methoxyethyl)amine

KOROMA EIC1700

RL: TEM (Technical or engineered material use); USES (Uses)
 (basic compound; photoacid generators and **chemical amplified resist** compns. for patterning process)

IT 462081-93-2
 RL: TEM (Technical or engineered material use); USES (Uses)
 (crosslinker; photoacid generators and **chemical amplified resist** compns. for patterning process)

IT 69-72-7, Salicylic acid, uses 126-00-1
 RL: TEM (Technical or engineered material use); USES (Uses)
 (organic acid; photoacid generators and **chemical amplified resist** compns. for patterning process)

IT 625838-21-3P 625838-22-4P 625838-23-5P 625838-24-6P
 RL: PRP (Properties); SPN (**Synthetic preparation**); TEM
 (Technical or engineered material use); PREP (**Preparation**); USES
 (Uses)
 (photoacid generator; photoacid generators and **chemical amplified resist** compns. for patterning process)

IT 39153-56-5, Bis(2,4-dimethylphenylsulfonylethyl)diazoethane 138529-81-4,
 Bis(cyclohexylsulfonylethyl)diazoethane 195723-94-5, (4-tert-
 Butoxyphenyl)diphenylsulfonium 10-camphor-sulfonate 219651-32-8
 326925-52-4 625849-55-0
 RL: TEM (Technical or engineered material use); USES (Uses)
 (photoacid generator; photoacid generators and **chemical amplified resist** compns. for patterning process)

IT 625838-43-9P
 RL: PRP (Properties); SPN (**Synthetic preparation**); PREP
 (**Preparation**)
 (photoacid generators and **chemical amplified resist** compns. for patterning process)

IT 825-52-5, 2-Hydroxyimino-2-phenylacetone 267420-08-6
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (photoacid generators and **chemical amplified resist** compns. for patterning process)

IT 625838-25-7P 625838-26-8P 625838-27-9P 625838-28-0P 625838-29-1P
 625838-30-4P 625838-31-5P 625838-32-6P 625838-33-7P 625838-34-8P
 625838-35-9P 625838-36-0P 625838-37-1P 625838-38-2P 625838-39-3P
 625838-40-6P 625838-41-7P 625838-42-8P
 RL: SPN (**Synthetic preparation**); PREP (**Preparation**)
 (photoacid generators and **chemical amplified resist** compns. for patterning process)

IT 24979-70-2D, Poly(p-hydroxystyrene), acetyl, ethoxyethyl and
 tert-butoxycarbonyl derivs. 159296-87-4, p-Hydroxystyrene-tert-
 butyl **acrylate copolymer** 326925-68-2,
 p-Hydroxystyrene-1-ethylcyclopentyl methacrylate **copolymer**
 345580-95-2 369385-37-5D, ethoxyethyl derivs. 552840-49-0
 552840-50-3 552840-52-5D, tert-butoxycarbonyl derivs. 552840-54-7
 RL: TEM (Technical or engineered material use); USES (Uses)
 (photoacid generators and **chemical amplified resist** compns. for patterning process)

IT 60872-03-9P 121347-21-5P 172202-15-2P 326925-61-5P 418767-69-8P
 422309-80-6P 422309-81-7P 595558-01-3P 595558-02-4P 595558-03-5P
 595558-04-6P 595558-05-7P 595558-06-8P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation)
; PREP (Preparation); RACT (Reactant or reagent)
(preparation of photoacid generators)

IT 98-59-9, p-Toluenesulfonic acid chloride 98-67-9, Benzenesulfonic acid,
4-hydroxy- 135-76-2, Sodium 2,6-Naphtholsulfonate 1310-73-2, Sodium
hydroxide, reactions 1321-14-8, Potassium guaiacolsulfonate 6099-57-6,
Sodium 1,4-naphtholsulfonate 10026-13-8, Phosphorus pentachloride
20215-36-5, Sodium 1,8-naphtholsulfonate 21799-87-1, Potassium
hydroquinonesulfonate

RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of photoacid generators)

IT 97-64-3, Ethyl lactate 84540-57-8, Propylene glycol methyl ether acetate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; photoacid generators and **chemical amplified**
resist compns. for patterning process)

L26 ANSWER 6 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:777219 CAPLUS

DOCUMENT NUMBER: 139:299200

TITLE: **Copolymer for use in chemical
amplification resists**

INVENTOR(S): Ito, Hiroshi

PATENT ASSIGNEE(S): USA

SOURCE: U.S. Pat. Appl. Publ., 14 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003186160	A1	20031002	US 2002-91373	20020304
JP 2003292542	A2	20031015	JP 2003-50104	20030226
			US 2002-91373	A 20020304

PRIORITY APPLN. INFO.:

AB A **copolymer** is provided for use in a lithog. photoresist composition,
particularly a **chemical amplification** photoresist. In a
preferred embodiment, the **copolymer** is substantially transparent
to deep UV radiation, i.e., radiation of a wavelength less than 250 nm,
including 157 nm, 193 nm and 248 nm radiation, and has improved
sensitivity and resolution. In one embodiment, the **copolymer** is
comprised of an α -cyano- or an α -trifluoro-methacrylate
monomer unit and a vinyl ether monomer unit. A lithog. photoresist composition
containing the fluorinated **copolymer** is also provided, as is a
process for using the composition to generate **resist** images on a
substrate, i.e., in the manufacture of integrated circuits or the like.

IT 478623-13-1P 478623-14-2P 478623-15-3P
478623-16-4P

RL: PRP (Properties); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); USES
(Uses)

(**copolymer** for use in **chemical amplification**

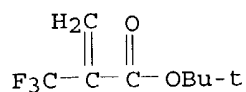
resists)

RN 478623-13-1 CAPLUS
 CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer
 with 2-(ethenyloxy)-2-methylpropane (9CI) (CA INDEX NAME)

CM 1

CRN 105935-24-8

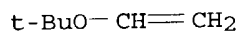
CMF C8 H11 F3 O2



CM 2

CRN 926-02-3

CMF C6 H12 O

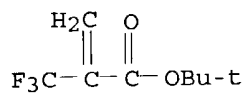


RN 478623-14-2 CAPLUS
 CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer
 with ethoxyethene (9CI) (CA INDEX NAME)

CM 1

CRN 105935-24-8

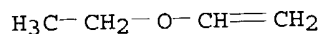
CMF C8 H11 F3 O2



CM 2

CRN 109-92-2

CMF C4 H8 O



RN 478623-15-3 CAPLUS

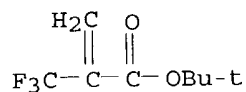
KOROMA EIC1700

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer
with 2,3-dihydrofuran (9CI) (CA INDEX NAME)

CM 1

CRN 105935-24-8

CMF C8 H11 F3 O2



CM 2

CRN 1191-99-7

CMF C4 H6 O



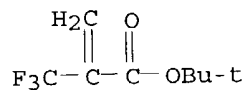
RN 478623-16-4 CAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1,1-dimethylethyl ester, polymer
with 1,3-dioxol-2-one (9CI) (CA INDEX NAME)

CM 1

CRN 105935-24-8

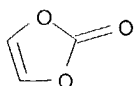
CMF C8 H11 F3 O2



CM 2

CRN 872-36-6

CMF C3 H2 O3



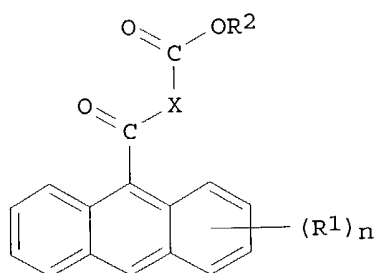
IC ICM G03F007-038
NCL 430270100; 430325000; 430907000
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 35, 38
ST **copolymer chem amplification photoresist**
IT **Photoresists**
(copolymer for use in chemical amplification
resists)
IT 478623-13-1P 478623-14-2P 478623-15-3P
478623-16-4P 608525-59-3P
RL: PRP (Properties); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); USES
(Uses)
(copolymer for use in chemical amplification
resists)
IT 608525-58-2P
RL: SPN (Synthetic preparation); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)
(copolymer for use in chemical amplification
resists)
IT 335-08-0P, 1,1,1-Trifluoroacetone cyanohydrin 381-84-0P,
2-(Trifluoromethyl)Acrylonitrile 381-98-6P,
2-(Trifluoromethyl)Acrylic Acid 382-90-1P, Methyl
 α -(Trifluoromethyl) acrylate 4588-51-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation)
; PREP (Preparation); RACT (Reactant or reagent)
(preparation of copolymer for use in chemical
amplification resists)
IT 79-37-8, Oxalyl chloride 108-24-7, Acetic anhydride 143-33-9, Sodium
cyanide 421-50-1, 1,1,1-Trifluoroacetone
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of copolymer for use in chemical
amplification resists)
IT 382-43-4P, 3-Hydroxy-2-(trifluoromethyl)propionic acid 105935-24-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(preparation of copolymer for use in chemical
amplification resists)

L26 ANSWER 7 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:717279 CAPLUS
DOCUMENT NUMBER: 139:237714
TITLE: Anthracene derivative and radiation-sensitive resin
composition
INVENTOR(S): Nagai, Tomoki; Shimokawa, Tsutomu
PATENT ASSIGNEE(S): JSR Corporation, Japan
SOURCE: Eur. Pat. Appl., 27 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1343048	A2	20030910	EP 2003-5053	20030306
EP 1343048	A3	20040114		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
US 2003194634	A1	20031016	US 2003-379507	20030306
JP 2003327560	A2	20031119	JP 2003-59443	20030306
PRIORITY APPLN. INFO.:		JP 2002-64549	A	20020308
OTHER SOURCE(S):		MARPAT 139:237714		

GI



I

AB A novel anthracene derivative useful as an additive to a radiation-sensitive resin composition is disclosed. The anthracene derivative has formula I, (R1 = hydroxyl group, C1-2- monovalent organic group; n = 0-9; X = single bond, C1-12 divalent organic group; R2 = monovalent acid-dissociable group). The radiation-sensitive resin composition comprises the anthracene derivative of the

formula I, a resin insol. or scarcely soluble in alkali, but becomes alkali soluble in the presence of an acid, and a photoacid generator. The composition is

useful as a **chemical-amplified resist** for microfabrication utilizing deep UV rays, typified by a KrF excimer laser and ArF excimer laser.

IT **221549-67-3DP, 4-Acetoxy-styrene-tert-butyl acrylate-styrene copolymer, hydrolyzed**

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

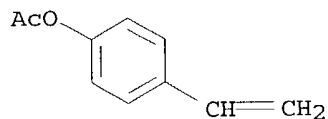
(radiation-sensitive resin composition containing anthracene derivative additive and)

RN 221549-67-3 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

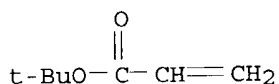
CM 1

CRN 2628-16-2
CMF C10 H10 O2



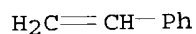
CM 2

CRN 1663-39-4
CMF C7 H12 O2



CM 3

CRN 100-42-5
CMF C8 H8



IC ICM G03F007-004
ICS C07C015-28

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38

ST photoresist anthracene deriv radiation sensitive resin compn

IT **Photoresists**

(anthracene derivative and radiation-sensitive resin composition)

IT 109-92-2DP, Ethyl vinyl ether, reaction product with Hydroxystyrene copolymer

RL: PRP (Properties); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); USES
(Uses)

(anthracene derivative and radiation-sensitive resin composition)

IT 594840-62-7P

RL: PRP (Properties); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); USES

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(Uses)
 (anthracene derivative for radiation-sensitive resin composition)
 IT 594840-63-8P
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (anthracene derivative for radiation-sensitive resin composition)
 IT 642-31-9, 9-Anthracenecarboxaldehyde 723-62-6, 9-Anthracene carboxylic acid 5292-43-3, tert-Butyl bromoacetate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of anthracene derivative for radiation-sensitive resin composition)
 IT 123589-22-ODP, 4-tert-Butoxystyrene-4-Hydroxystyrene copolymer, reaction product with Et vinyl ether 221549-67-3DP, 4-Acetoxy styrene-tert-butyl acrylate-styrene copolymer, hydrolyzed 406198-64-9DP, 4-Acetoxy styrene-4-tert-Butoxystyrene-styrene copolymer, hydrolyzed
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (radiation-sensitive resin composition containing anthracene derivative additive and)

L26 ANSWER 8 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:656292 CAPLUS
 DOCUMENT NUMBER: 139:188315
 TITLE: Copolymer, polymer mixture, and radiation-sensitive resin composition
 INVENTOR(S): Nagai, Tomoki; Shimizu, Daisuke; Shimokawa, Tsutomu; Miyajima, Fumihisa; Miyaji, Masaaki
 PATENT ASSIGNEE(S): Japan
 SOURCE: U.S. Pat. Appl. Publ., 22 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003157423	A1	20030821	US 2002-321518	20021218
PRIORITY APPLN. INFO.:			JP 2001-387913	A 20011220
			JP 2002-329469	A 20021113

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The present invention relates to a copolymer having recurring units of the following formulas I, II, and III, (R1,4,5,6 = H, Me group;

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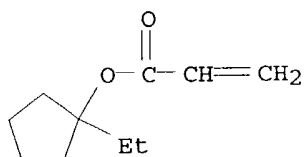
R_{2,3,7} = monovalent organic group; k = 1-2; l = 0-4; n = 1-3; m = 0-3; R₈ = substituted Me group, 1-substituted Et group, 1-branched alkyl group, triorganosilyl group, triorgano-germyl group, alkoxy carbonyl group, acyl group, cyclic acid-dissociable group, with two or more R₈ groups being the same or different; q = 1-3; p = 0-3); the copolymer having a GPC average mol. weight of 3,000-100,000. The composition is useful as a polymer component for a radiation-sensitive resin composition suitable as a **chemical-amplified resist**.

IT 577796-36-2DP, p-Acetoxystyrene-p-tert-butoxystyrene-1-ethylcyclopentyl **acrylate copolymer**, hydrolyzed
 577796-39-5DP, p-Acetoxystyrene-p-tert-butoxystyrene-1-ethylcyclohexyl **acrylate copolymer**, hydrolyzed
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (polymer mixture for radiation-sensitive resin composition for)

RN 577796-36-2 CAPLUS
 CN 2-Propenoic acid, 1-ethylcyclopentyl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenyl acetate (9CI)
 (CA INDEX NAME)

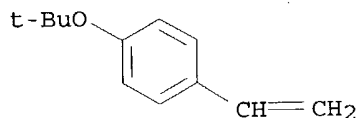
CM 1

CRN 326925-69-3
 CMF C10 H16 O2



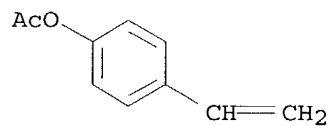
CM 2

CRN 95418-58-9
 CMF C12 H16 O



CM 3

CRN 2628-16-2
 CMF C10 H10 O2



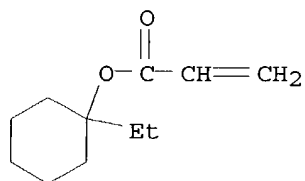
RN 577796-39-5 CAPLUS

CN 2-Propenoic acid, 1-ethylcyclohexyl ester, polymer with
1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenyl acetate (9CI)
(CA INDEX NAME)

CM 1

CRN 251909-25-8

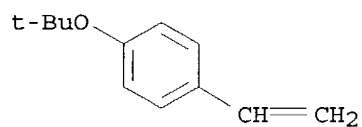
CMF C11 H18 O2



CM 2

CRN 95418-58-9

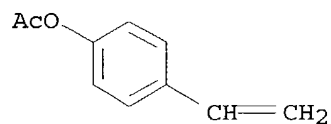
CMF C12 H16 O



CM 3

CRN 2628-16-2

CMF C10 H10 O2



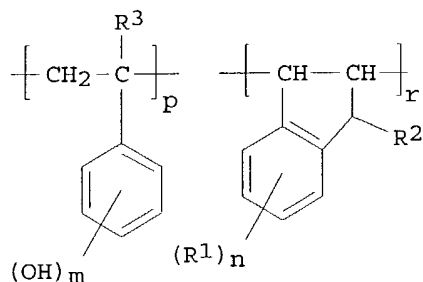
KOROMA EIC1700

IC ICM G03F007-039
 ICS G03F007-075; C08F232-04; C08F232-08; G03F007-021
 NCL 430170000; 430270100; 430914000; 430921000; 525206000; 525211000;
 525212000; 525210000; 525216000; 526240000
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 35, 38
 ST photoresist **copolymer** mixt radiation sensitive resin compn
 IT **Photoresists**
 (polymer mixture for radiation-sensitive resin composition for)
 IT 123589-22-ODP, p-tert-Butoxystyrene-p-hydroxystyrene **copolymer**,
 reaction product with Et vinyl ether
 RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM
 (Technical or engineered material use); **PREP (Preparation)**; USES
 (Uses)
 (VPT 1503S; polymer mixture for radiation-sensitive resin composition for)
 IT 109-92-2DP, Ethyl vinyl ether, reaction product with hydroxystyrene
 polymer 95418-60-3DP, hydrolyzed or partially hydrolyzed
577796-36-2DP, p-Acetoxystyrene-p-tert-butoxystyrene-1-
 ethylcyclopentyl **acrylate copolymer**, hydrolyzed
 577796-37-3DP, hydrolyzed 577796-37-3DP, hydrolyzed and reaction product
 with Et vinyl ether 577796-38-4DP, hydrolyzed **577796-39-5DP**,
 p-Acetoxystyrene-p-tert-butoxystyrene-1-ethylcyclohexyl **acrylate**
copolymer, hydrolyzed
 RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM
 (Technical or engineered material use); **PREP (Preparation)**; USES
 (Uses)
 (polymer mixture for radiation-sensitive resin composition for)

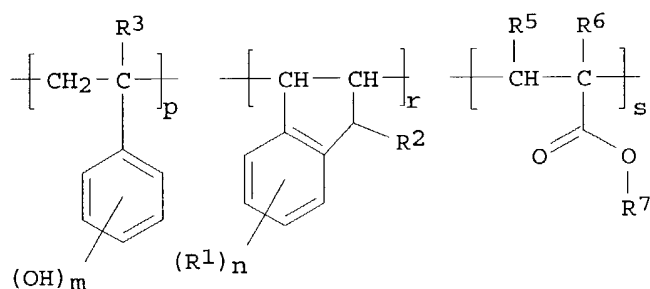
L26 ANSWER 9 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:653455 CAPLUS
 DOCUMENT NUMBER: 139:188310
 TITLE: Negative **resist** materials and their
 patterning with high-energy ray or electron beam
 INVENTOR(S): Takeda, Takanobu; Watanabe, Osamu; Kusaki, Wataru;
 Koitabashi, Ryuji
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003233185	A2	20030822	JP 2002-32380	20020208
US 2004023151	A1	20040205	US 2003-351097	20030123
PRIORITY APPLN. INFO.:			JP 2002-32380	A 20020208

GI



I



II

AB The neg. **resist** materials contain macromol. compds. with Mw 1,000-500,000, represented by general formula I or II (R1, R2 = H, OH, linear or branched alkyl, alkoxy which may be substituted; halogen; R3, R5 = H, Me; R6 = H, Me, alkoxy carbonyl, cyano, halogen; R7 = C1-20 alkyl which may be substituted; n = 0-4 integer; m = 0-5 integer; p, s ≥ 0 integer; r = pos. integer) and optionally organic solvents, crosslinking agents, photoacid generators, and bases and/or surfactants. The **resist** materials are applied on substrates, heated, exposed to high-energy beam such as DUV or electron beam, and developed with alkalis. The **resist** materials have high sensitivity, high resolution, and excellent etching **resistance**, and are useful for formation of fine patterns for ultra LSI fabrication and mask pattern-forming materials.

IT **581075-41-4P**, Glycidyl methacrylate-4-hydroxystyrene-indene copolymer **581075-42-5P**, 2-Hydroxyethyl methacrylate-4-hydroxystyrene-indene copolymer

RL: **IMF** (Industrial manufacture); **TEM** (Technical or engineered material use); **PREP** (Preparation); **USES** (Uses)

(neg. **resist** materials and their patterning with high-energy ray or electron beam)

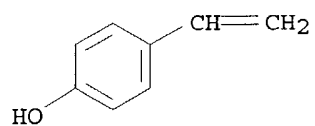
RN **581075-41-4** CAPLUS

CN 2-Propenoic acid, 2-methyl-, oxiranylmethyl ester, polymer with 4-ethenylphenol and 1H-indene (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

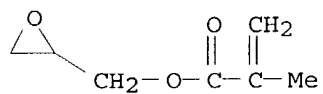
CMF C8 H8 O



CM 2

CRN 106-91-2

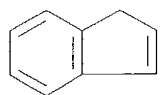
CMF C7 H10 O3



CM 3

CRN 95-13-6

CMF C9 H8



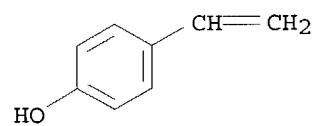
RN 581075-42-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 4-ethenylphenol and 1H-indene (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

CMF C8 H8 O

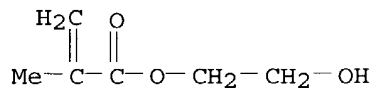


KOROMA EIC1700

CM 2

CRN 868-77-9

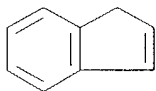
CMF C6 H10 O3



CM 3

CRN 95-13-6

CMF C9 H8



IC ICM G03F007-038

ICS C08F012-22; C08F020-12; C08F032-08; G03F007-004; G03F007-033;
H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 38

ST substitutive indene **copolymer** neg **resist** material;

chem amplified resist neg indene

copolymer; electron beam **resist** neg indene

copolymer; deep UV **resist** neg indene **copolymer**

; photoresist neg indene **copolymer**

IT Negative **photoresists**

(deep UV; neg. **resist** materials and their patterning with
high-energy ray or electron beam)

IT Fluoropolymers, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)

(fluoroalkyl group-containing, **acrylic**, block, surfactant; neg.
resist materials and their patterning with high-energy ray or
electron beam)

IT **Acrylic** polymers, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)

(fluoroalkyl-containing fluoropolymer-, block, surfactant; neg.
resist materials and their patterning with high-energy ray or
electron beam)

IT **Acrylic** polymers, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material

KOROMA EIC1700

- use); USES (Uses)
(fluoroalkyl-containing fluoropolymer-, surfactant; neg. **resist** materials and their patterning with high-energy ray or electron beam)
- IT Electron beam **resists**
(neg.; neg. **resist** materials and their patterning with high-energy ray or electron beam)
- IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(perfluoroalkyl-containing, **acrylic**, surfactant; neg. **resist** materials and their patterning with high-energy ray or electron beam)
- IT 102-82-9, Tributylamine 3235-51-6, Tris(2-methoxyethyl)amine
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(base; neg. **resist** materials and their patterning with high-energy ray or electron beam)
- IT 3089-11-0, Hexamethoxymethylmelamine 17464-88-9, Tetramethoxymethyl glycoluril
RL: RCT (Reactant); RACT (Reactant or reagent)
(crosslinking agent; neg. **resist** materials and their patterning with high-energy ray or electron beam)
- IT 420808-57-7P, Acetoxystyrene-indene **copolymer** 581075-39-0P, Acetoxystyrene-glycidyl methacrylate-indene **copolymer** 581075-40-3P, Acetoxystyrene-2-hydroxyethyl methacrylate-indene **copolymer**
RL: **IMF** (Industrial manufacture); RCT (Reactant); **PREP** (Preparation); RACT (Reactant or reagent)
(neg. **resist** materials and their patterning with high-energy ray or electron beam)
- IT 552840-52-5P, 4-Hydroxystyrene-indene **copolymer** 581075-41-4P, Glycidyl methacrylate-4-hydroxystyrene-indene **copolymer** 581075-42-5P, 2-Hydroxyethyl methacrylate-4-hydroxystyrene-indene **copolymer**
RL: **IMF** (Industrial manufacture); TEM (Technical or engineered material use); **PREP** (Preparation); USES (Uses)
(neg. **resist** materials and their patterning with high-energy ray or electron beam)
- IT 138529-84-7, Bis(tert-butylsulfonyl)diazomethane 326925-52-4 581075-43-6
RL: CAT (Catalyst use); USES (Uses)
(photoacid generator; neg. **resist** materials and their patterning with high-energy ray or electron beam)
- IT 11114-17-3, FC 430 96231-87-7, Surflon S 381
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(surfactant; neg. **resist** materials and their patterning with high-energy ray or electron beam)

L26 ANSWER 10 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:371835 CAPLUS
DOCUMENT NUMBER: 138:376423

TITLE: **Chemically amplified positive resist compositions with suppressed variation in line width on on high-reflection substrates**

INVENTOR(S): Nishiyama, Fumiyuki; Fujimori, Toru

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 32 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003140351	A2	20030514	JP 2001-341933	20011107
PRIORITY APPLN. INFO.:			JP 2001-341933	20011107
OTHER SOURCE(S):			MARPAT 138:376423	

AB The pos. **resist** compns. contain (a) resins A bearing acid-decomposing groups represented by general formula $\text{OCHMeO}(\text{CR}_1\text{R}_2)_m\text{Z}_1$ [R_1 , R_2 = H, (substituted) alkyl; m = 1-20 integer; Z_1 = (substituted) alkyl, aryl, or aralkyl-substituted benzyl or cyclohexyl with number of the substituent 0-5 integer] and/or B bearing acid-decomposing groups represented by general formula OCMeOR_4 (R_4 = alkyl); these resins increase solubility in alkali developers by acids; (b) photoacid generators, preferably compds. having a sulfonium salt structure and/or a diazodisulfone structure, and (c) compds. represented by general formula , and $\text{R}_5\text{OCR}_6\text{R}_7\text{OXY}_1\text{Z}_2$ [R_5 = (substituted) monovalent alkyl; R_6 , R_7 = H, alkylene; X = (substituted) alkylene; Y = divalent linkage; Z_2 = (substituted) heterocyclic group; $1 = 0, 1$]. Variation in line width due to variation in **resist** film thickness on high-reflection substrates having uneven surfaces (such as bare Si wafers, polysilicon wafers, etc.) has been greatly decreased.

IT **419536-25-7DP**, Cyclohexyl **acrylate**-p-hydroxystyrene copolymer, reaction products with Et vinyl ether

RL: **IMF** (Industrial manufacture); TEM (Technical or engineered material use); **PREP** (Preparation); **USES** (Uses)

(**chemical amplified pos. resist** compns. with suppressed variation in line width on on high-reflection substrates)

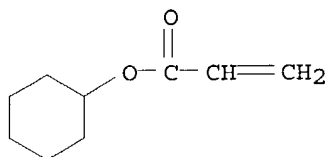
RN **419536-25-7** CAPLUS

CN 2-Propenoic acid, cyclohexyl ester, polymer with 4-ethenylphenol (9CI)
(CA INDEX NAME)

CM 1

CRN 3066-71-5

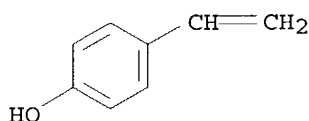
CMF C9 H14 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



- IC ICM G03F007-039
ICS C08F008-00; C08F012-22; G03F007-004; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
- ST pos **resist** acid decomp group resin; sulfonium salt **chem**
amplified pos **resist**; diazodisulfone **chem**
amplified pos **resist**; deep UV **resist** pos
phenol polymer
- IT Positive **photoresists**
(**chemical amplified** pos. **resist** compns. with
suppressed variation in line width on on high-reflection substrates)
- IT Sulfones
RL: CAT (Catalyst use); USES (Uses)
(diazodi-, photoacid generator; **chemical amplified**
pos. **resist** compns. with suppressed variation in line width
on on high-reflection substrates)
- IT Sulfonium compounds
RL: CAT (Catalyst use); USES (Uses)
(photoacid generator; **chemical amplified** pos.
resist compns. with suppressed variation in line width on on
high-reflection substrates)
- IT 109-92-2DP, Ethyl vinyl ether, reaction products with poly(4-
hydroxystyrene) 926-02-3DP, tert-Butyl vinyl ether, reaction products
with poly(4-hydroxystyrene), transacetalation with cyclohexaneethanol
4442-79-9DP, Cyclohexaneethanol, transacetalation with reaction product of
poly(4-hydroxystyrene) with tert-Bu vinyl ether 24979-70-2DP, VP 15000,
reaction products with tert-Bu vinyl ether, transacetalation with
cyclohexaneethanol 376359-32-9DP, p-tert-Butylstyrene-p-hydroxystyrene
copolymer, reaction products with tert-Bu vinyl ether,
transacetalation with cyclohexaneethanol 419536-25-7DP,

Cyclohexyl acrylate-p-hydroxystyrene copolymer,
reaction products with Et vinyl ether

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(chemical amplified pos. resist compns. with
suppressed variation in line width on on high-reflection substrates)

IT 524056-56-2 524056-58-4 524056-60-8 524056-62-0 524056-64-2
524056-66-4 524056-68-6 524056-70-0 524056-72-2 524056-74-4
524056-76-6 524056-78-8 524056-80-2 524056-82-4 524056-84-6
524056-86-8 524056-88-0 524056-90-4 524056-92-6 524056-94-8
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)

(chemical amplified pos. resist compns. with
suppressed variation in line width on on high-reflection substrates)

IT 66003-78-9 197447-16-8
RL: CAT (Catalyst use); USES (Uses)
(photoacid generator; chemical amplified pos.
resist compns. with suppressed variation in line width on on
high-reflection substrates)

L26 ANSWER 11 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:369196 CAPLUS

DOCUMENT NUMBER: 138:376418

TITLE: Chemically amplified positive
resist compositions having decreased variation
in line width and good performances on uneven-surfaced
substrates

INVENTOR(S): Nishiyama, Fumiyuki; Fujimori, Toru

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 39 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003140343	A2	20030514	JP 2001-336413	20011101
US 2003134221	A1	20030717	US 2002-285502	20021101

PRIORITY APPLN. INFO.: JP 2001-336413 A 20011101

AB The pos. resist compns. contain (a) resins A and/or B and C,
each bearing acid-decomposing groups represented by general formulas
OCHMeO(CR1R2)mZ1 [for resin A; R1, R2 = H, (substituted) alkyl; m = 1-20
integer; Z1 = (substituted) alkyl, aryl, or aralkyl-substituted benzyl or
cyclohexyl with number of the substituent 0-5 integer], OCMOR4 (for resin B;
R4 = alkyl), and OCR5R6OXYlZ2 [for resin C; R5, R6 = H, alkylene; X =
(substituted) alkylene; Y = divalent linkage; Z2 = (substituted)
heterocyclic group; l = 0, 1]; these resins increase solubility in alkali
developers by acids; and (b) photoacid generators, preferably compds.
having a sulfonium salt structure and/or a diazodisulfone structure.
Variation in line width due to variation in resist film

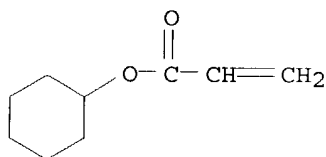
thickness on high-reflection substrates having uneven surfaces (such as bare Si wafers, polysilicon wafers, etc.) has been greatly decreased.

- IT 419536-25-7DP, Cyclohexyl **acrylate**-p-hydroxystyrene copolymer, reaction products with Et vinyl ether
 RL: **IMF** (Industrial manufacture); TEM (Technical or engineered material use); **PREP** (Preparation); **USES** (Uses)
 (chemical amplified pos. DUV **resist** compns.
 containing 2 or 3 types of acid-decomposable resins)
 RN 419536-25-7 CAPLUS
 CN 2-Propenoic acid, cyclohexyl ester, polymer with 4-ethenylphenol (9CI)
 (CA INDEX NAME)

CM 1

CRN 3066-71-5

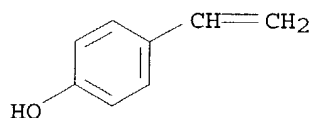
CMF C9 H14 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



- IC ICM G03F007-039
 ICS H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38
 ST pos **resist** acid decomp group resin; sulfonium salt **chem**
amplified pos resist; diazodisulfone **chem**
amplified pos resist; deep UV **resist** pos
 phenol polymer
 IT Positive **photoresists**
 (chemical amplified pos. DUV **resist** compns.
 containing 2 or 3 types of acid-decomposable resins)
 IT Sulfones
 RL: CAT (Catalyst use); **USES** (Uses)

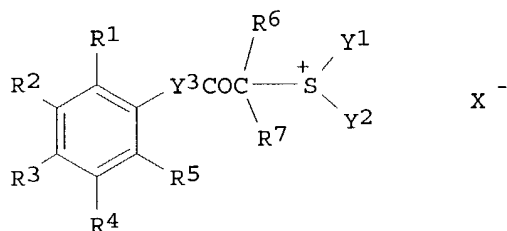
- (diazodi-, photoacid generator; **chemical amplified pos. DUV resist** compns. containing 2 or 3 types of acid-decomposable resins)
- IT Sulfonium compounds
 RL: CAT (Catalyst use); USES (Uses)
 (photoacid generator; **chemical amplified pos. DUV resist** compns. containing 2 or 3 types of acid-decomposable resins)
- IT 88-14-2DP, 2-Furancarboxylic acid, reaction products with poly(4-hydroxystyrene) 527-72-0DP, 2-Thiophenecarboxylic acid, reaction products with poly(4-hydroxystyrene) 616-45-5DP, 2-Pyrrolidone, reaction products with poly(4-hydroxystyrene) 2786-07-4DP, 2-Thienyllithium, reaction products with poly(4-hydroxystyrene) 5713-61-1DP, 2-Thienylmagnesium bromide, reaction products with poly(4-hydroxystyrene) 87957-31-1DP, reaction products with poly(4-hydroxystyrene)
 RL: **IMF (Industrial manufacture)**; RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
 (**chemical amplified pos. DUV resist** compns. containing 2 or 3 types of acid-decomposable resins)
- IT 109-92-2DP, Ethyl vinyl ether, reaction products with poly(4-hydroxystyrene) 926-02-3DP, tert-Butyl vinyl ether, reaction products with poly(4-hydroxystyrene), transacetalation with cyclohexaneethanol 4442-79-9DP, Cyclohexaneethanol, transacetalation with reaction product of poly(4-hydroxystyrene) with tert-Bu vinyl ether 24979-70-2DP, VP 15000, reaction products with tert-Bu vinyl ether, transacetalation with cyclohexaneethanol 376359-32-9DP, p-tert-Butylstyrene-p-hydroxystyrene **copolymer**, reaction products with tert-Bu vinyl ether, transacetalation with cyclohexaneethanol **419536-25-7DP**, Cyclohexyl **acrylate**-p-hydroxystyrene **copolymer**, reaction products with Et vinyl ether
 RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
 (**chemical amplified pos. DUV resist** compns. containing 2 or 3 types of acid-decomposable resins)
- IT 23354-96-3P 86366-53-2P 314056-06-9P 314056-07-0P 314056-08-1P 314056-09-2P
 RL: **IMF (Industrial manufacture)**; RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
 (compound for acid-labile group; **chemical amplified pos. DUV resist** compns. containing 2 or 3 types of acid-decomposable resins)
- IT 66003-78-9 138529-81-4 197447-16-8
 RL: CAT (Catalyst use); USES (Uses)
 (photoacid generator; **chemical amplified pos. DUV resist** compns. containing 2 or 3 types of acid-decomposable resins)
- IT 88-14-2P, 2-Furancarboxylic acid 527-72-0P, 2-Thiophenecarboxylic acid 616-45-5P, 2-Pyrrolidone 2786-07-4P, 2-Thienyllithium 5713-61-1P, 2-Thienylmagnesium bromide 7774-73-4P, 3-Thiophenethiol
 RL: **IMF (Industrial manufacture)**; RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
 (preparation of compound for acid-labile group from; **chemical amplified pos. DUV resist** compns. containing 2 or 3 types of acid-decomposable resins)

IT 110-75-8, 2-Chloroethyl vinyl ether 1918-77-0, 2-Thiopheneacetic acid
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of compound for acid-labile group from; **chemical**
amplified pos. DUV **resist** compns. containing 2 or 3 types
 of acid-decomposable resins)

L26 ANSWER 12 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:97194 CAPLUS
 DOCUMENT NUMBER: 138:145067
 TITLE: Positive radiation-sensitive compositions having high
 sensitivity and high resolution
 INVENTOR(S): Kodama, Kunihiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 51 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003035948	A2	20030207	JP 2002-141737	20020516
US 2003075708	A1	20030424	US 2002-144536	20020514
PRIORITY APPLN. INFO.:			JP 2001-148006 A	20010517
OTHER SOURCE(S):	MARPAT 138:145067			

GI



AB The compns. contain (A) ≥ 1 compds. generating acids by actinic ray
 (DUV, electron beam, x-ray, ionic ray) irradiation and represented by general
 formula I (R1-R5 = H, alkyl, alkoxy, NO₂, halo, alkoxycarbonyl, aryl;
 ≥ 2 of R1-R5 may be bonded to each other and form ring structure;
 R6, R7 = H, alkyl, CN, aryl; Y1, Y2 = alkyl, aryl, aralkyl, hetero
 atom-containing aromatic group; Y1 and Y2 may be bonded to each other and form
 ring; Y3 = single bond or divalent linking group; X⁻ = non-nucleophilic
 anion; ≥ 1 of R1-R5 and Y1 and/or Y2 are bonded to each other and
 form ring or ≥ 1 of R1-R5 and R6 and/or R7 are bonded to each other
 and form ring; the compound may bear ≥ 2 of the structure I by bonding
 via a linking group at desired positions selected from R1-R7 or Y1 or Y2)
 and (B) resins bearing groups which can be decomposed by acids and increase

solubility in alkali developers. In another alternative, the compns. contain A, (C) low mol.-weight dissoln. inhibitors with mol. weight ≤ 3000 and bearing groups which can be decomposed by acids and increase solubility in alkali

developers, and (D) resins which are insol. in water and soluble in alkali developers. The compns. are useful for fabrication of lithog. plates, IC, circuit boards for liquid crystals and thermal heads, etc.

IT 159296-87-4P, tert-Butyl acrylate-p-hydroxystyrene
copolymer 200808-68-0P, tert-Butyl acrylate
-p-hydroxystyrene-styrene copolymer

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(base polymer; chemical-amplified pos.

radiation-sensitive compns. having high sensitivity and high resolution)

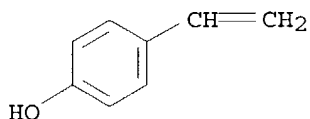
RN 159296-87-4 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol
(9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

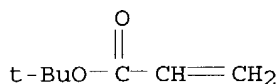
CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



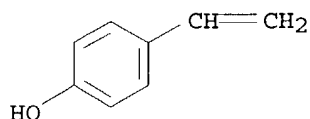
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and
4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

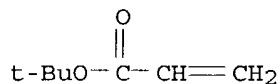
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CM 2

CRN 1663-39-4

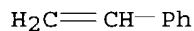
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CM 3

CRN 100-42-5

CMF C8 H8



IC ICM G03F007-004

ICS G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

ST pos DUV **resist** photoacid generator; thioanisole chloroacetic acid chloride reaction photoacid generator; deep UV **resist** pos photoacid generator; radiation sensitive **resist** pos photoacid generator; cyclic ketone silyl enol ether sulfoxide reaction; electron beam **resist** pos photoacid generator; **chem amplified resist** pos photoacid generator; tetralon enol silyl ether sulfoxide reaction

IT Positive **photoresists**

(UV; **chemical-amplified** pos. radiation-sensitive compns. having high sensitivity and high resolution)

IT Positive **photoresists**

(**chemical-amplified** pos. radiation-sensitive compns. having high sensitivity and high resolution)

IT Electron beam **resists**

(pos.-working; **chemical-amplified** pos. radiation-sensitive compns. having high sensitivity and high resolution)

IT 926-02-3DP, tert-Butyl vinyl ether, reaction products with poly(p-hydroxystyrene) 24424-99-5DP, Di-tert-butyl dicarbonate, reaction products with poly(p-hydroxystyrene) 24979-70-2DP, VP 8000, reaction

- products with tert-Bu vinyl ether 129674-22-2P, p-(tert-Butoxycarbonyloxy)styrene-p-hydroxystyrene **copolymer** 159296-87-4P, tert-Butyl acrylate-p-hydroxystyrene **copolymer** 200808-68-0P, tert-Butyl acrylate-p-hydroxystyrene-styrene **copolymer** 422508-71-2P 422508-72-3P
- RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(base polymer; **chemical-amplified** pos.
radiation-sensitive compns. having high sensitivity and high resolution)
- IT 24979-69-9, Poly(m-hydroxystyrene) 24979-70-2, Poly(p-hydroxystyrene) 24979-74-6, p-Hydroxystyrene-styrene **copolymer** 125325-82-8 158593-28-3, p-(1-Ethoxyethoxy)styrene-p-hydroxystyrene **copolymer** 199432-82-1 288620-13-3 288620-15-5, p-(1-Benzyloxyethoxy)styrene-p-hydroxystyrene **copolymer** 289706-85-0, p-Acetoxystyrene-p-(1-benzyloxyethoxy)styrene-p-hydroxystyrene **copolymer** 325143-37-1, p-tert-Butylstyrene-p-[1-(cyclohexylethoxy)ethoxy]styrene-p-hydroxystyrene **copolymer** 422508-76-7
- RL: TEM (Technical or engineered material use); USES (Uses)
(base polymer; **chemical-amplified** pos.
radiation-sensitive compns. having high sensitivity and high resolution)
- IT 340986-46-1 474276-93-2 474510-79-7 474510-82-2 474510-86-6 474510-92-4 474511-05-2 477327-74-5 477327-75-6 477327-80-3 477328-06-6 477328-10-2 477328-11-3 477328-12-4 477328-13-5 477328-14-6 477328-19-1 477328-36-2 477328-38-4 494202-42-5
- RL: CAT (Catalyst use); USES (Uses)
(**chemical-amplified** pos. radiation-sensitive compns.
having high sensitivity and high resolution)
- IT 454471-15-9P
- RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(**chemical-amplified** pos. radiation-sensitive compns.
having high sensitivity and high resolution)
- IT 153698-54-5 153698-63-6 153698-65-8 359434-70-1 359434-73-4
- RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(dissoln. inhibitor; **chemical-amplified** pos.
radiation-sensitive compns. having high sensitivity and high resolution)
- IT 100-68-5, Thioanisole 29059-07-2, Tetralon
- RL: RCT (Reactant); RACT (Reactant or reagent)
(photoacid generator preparation from; **chemical-amplified** pos. radiation-sensitive compns. having high sensitivity and high resolution)
- IT 1600-44-8, Tetramethylenesulfoxide 29420-49-3, Potassium nonafluorobutanesulfonate
- RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant in photoacid generator preparation; **chemical-amplified** pos. radiation-sensitive compns. having high sensitivity and high resolution)

DOCUMENT NUMBER: 138:129005
 TITLE: Electron beam and UV lithographic pattern formation method using **chemically-amplified resist**
 INVENTOR(S): Endo, Masayuki; Sasago, Masaru
 PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 28 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003017425	A1	20030123	US 2002-166247	20020611
JP 2003075998	A2	20030312	JP 2002-100944	20020403

PRIORITY APPLN. INFO.: JP 2001-189262 A 20010622

OTHER SOURCE(S): MARPAT 138:129005

AB A **resist** film with a thickness of 250 nm or less is formed on a semiconductor substrate from a pos. **chemical amplified resist** material including a base polymer whose solubility in an alkaline developer is changed by a function of an acid and an acid generator that has at least one electron attractive group introduced into a meta-position of an aromatic ring included in a counter anion and generates an acid through irradiation with electron beams. The **resist** film is subjected to pattern exposure by irradiating with electron beams or extreme UV of a wavelength of a 1-30 nm band. The **resist** film is developed after the pattern exposure, thereby forming a **resist** pattern. The invention provides a pattern formation method in which lowering of resolution can be suppressed by preventing lowering of contrast in solubility even

when a **resist** film has a thickness smaller than 250 nm.

IT 200808-68-0P, tert-Butyl **acrylate**-p-hydroxystyrene-styrene **copolymer** 488820-69-5P, tert-Butyl **acrylate**-p-hydroxystyrene-p-methylstyrene **copolymer** 488820-70-8P, 1-Adamantyl **acrylate**-p-hydroxystyrene-styrene **copolymer**

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(electron beam and UV lithog. pattern formation method using **chemical-amplified resist**)

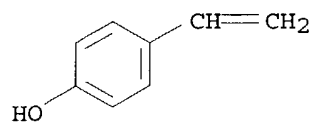
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

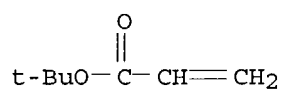
CMF C8 H8 O



CM 2

CRN 1663-39-4

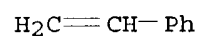
CMF C7 H12 O2



CM 3

CRN 100-42-5

CMF C8 H8



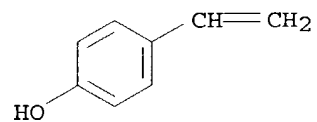
RN 488820-69-5 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with
1-ethenyl-4-methylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

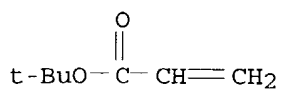
CMF C8 H8 O



CM 2

CRN 1663-39-4

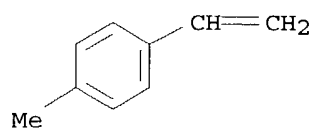
CMF C7 H12 O2



CM 3

CRN 622-97-9

CMF C9 H10



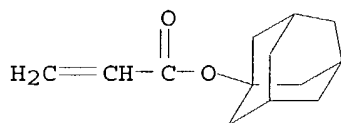
RN 488820-70-8 CAPLUS

CN 2-Propenoic acid, tricyclo[3.3.1.1^{3,7}]dec-1-yl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 121601-93-2

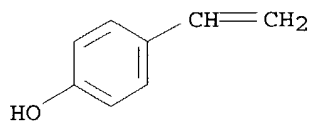
CMF C13 H18 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O

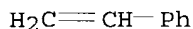


CM 3

CRN 100-42-5

CMF C8 H8

KOROMA EIC1700



IC ICM G03F007-40
 NCL 430322000; 430330000; 430296000
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38
 ST electron beam UV lithog **chem amplified resist**
 acid generator
 IT Photolithography
 (UV; electron beam and UV lithog. pattern formation method using **chemical-amplified resist**)
 IT Electron beam lithography
 Positive **photoresists**
Resists
 (electron beam and UV lithog. pattern formation method using **chemical-amplified resist**)
 IT 153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate
 350251-56-8P 389859-76-1P 488820-71-9P 488820-72-0P 488820-73-1P
 488820-74-2P 488820-75-3P
 RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM
 (Technical or engineered material use); **PREP (Preparation)**; USES
 (Uses)
 (acid generator; electron beam and UV lithog. pattern formation method using **chemical-amplified resist**)
 IT **200808-68-0P**, tert-Butyl **acrylate-p-hydroxystyrene-styrene copolymer** **488820-69-5P**, tert-Butyl **acrylate-p-hydroxystyrene-p-methylstyrene copolymer** **488820-70-8P**, 1-Adamantyl **acrylate-p-hydroxystyrene-styrene copolymer**
 RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM
 (Technical or engineered material use); **PREP (Preparation)**; USES
 (Uses)
 (electron beam and UV lithog. pattern formation method using **chemical-amplified resist**)
 IT 3353-89-7P, Triphenylsulfonium bromide 347841-68-3P
 RL: PRP (Properties); RCT (Reactant); **SPN (Synthetic preparation)**
 ; **PREP (Preparation)**; RACT (Reactant or reagent)
 (in preparation of acid generator)
 IT 108-86-1, Bromobenzene, reactions 576-83-0, 2-Bromomesitylene
 945-51-7, Diphenyl sulfoxide 270564-02-8, Tetramethylammonium
 pentafluorobenzenesulfonate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (in preparation of acid generator)

L26 ANSWER 14 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2003:17554 CAPLUS
 DOCUMENT NUMBER: 138:98190
 TITLE: **Chemically-amplified**

KOROMA EIC1700

negative-working **resist** compositions for
processing with electron beam or x-ray
INVENTOR(S): Takahashi, Akira; Shirakawa, Hiroshi; Adegawa, Yutaka
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 57 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003005355	A2	20030108	JP 2001-186705	20010620
PRIORITY APPLN. INFO.:			JP 2001-186705	20010620
OTHER SOURCE(S):	MARPAT 138:98190			
GI				

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The compns. comprise (A) compds. generating acids on irradiation with electron beam or x-ray, (B) polymers soluble in aqueous alkaline solns., and (D) ≥ 1 compds. selected from heterocycles defined by 8 Markush structures such as I, II, III, IV, V, and VI (R11 = H, aliphatic, aromatic, mixed, or heterocyclic amine, amide, imide, ester, halo, halogen substituted alkyl or aryl, OH, carboxyl, thiol, cyano, nitro, formyl, sulfonyl, sulfonamide, acyl, aroyl, alkyl, alkyloxy, alkenyloxy, heterocyclic, aryl, alkenyl, aralkyl; R12 = H, aromatic or heterocyclic amine, halogen-substituted alkyl or aryl, OH, acyl, aroyl, alkyl, alkyloxy, alkenyloxy, heterocyclic, aryl, alkenyl, aralkyl, ester, carbonate ester). The **resists** have excellent stability against post exposure bake. **Resists** with high resolution and excellent profiles are obtained.

IT 349647-07-0P, **Acrylonitrile-2-hydroxyethyl acrylate-2-[(4'-hydroxyphenyl)carbonyloxy]ethyl methacrylate copolymer**

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(**chemical-amplified neg.-working resist**

compns. containing heterocyclic compds. for obtaining fine profile patterns by processing with electron beam or x-ray)

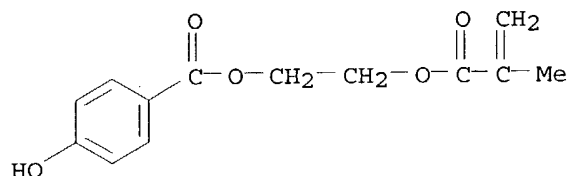
RN 349647-07-0 CAPLUS

CN Benzoic acid, 4-hydroxy-, 2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl ester, polymer with 2-hydroxyethyl 2-propenoate and 2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 34573-66-5

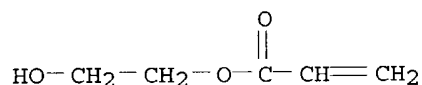
CMF C13 H14 O5



CM 2

CRN 818-61-1

CMF C5 H8 O3



CM 3

CRN 107-13-1

CMF C3 H3 N



IC ICM G03F007-004

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 28

ST **chem amplified** neg working photoresist electron beam;
x ray neg working photoresist; heterocyclic additive neg working
photoresist; pteridine deriv additive neg working photoresist

IT **Negative photoresists**

(**chemical-amplified; chemical-amplified**

neg.-working **resist** compns. containing heterocyclic compds. for
obtaining fine profile patterns by processing with electron beam or
x-ray)

IT 130501-59-6P, 4-Hydroxystyrene homopolymer acetate 173786-80-6DP,
4-Acetoxystyrene-4-methoxystyrene **copolymer**, hydrolyzed
349647-07-0P, Acrylonitrile-2-hydroxyethyl
acrylate-2-[(4'-hydroxyphenyl)carbonyloxy]ethyl methacrylate
copolymer

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
use); **PREP (Preparation)**; USES (Uses)

KOROMA EIC1700

(**chemical-amplified neg.-working resist**
comps. containing heterocyclic compds. for obtaining fine profile patterns
by processing with electron beam or x-ray)

IT 110726-28-8, 1-[α -Methyl- α -(4-hydroxyphenyl)ethyl]-4-
[α , α -bis(4-hydroxyphenyl)ethyl]benzene
RL: RCT (Reactant); RACT (Reactant or reagent)

(**chemical-amplified neg.-working resist**
comps. containing heterocyclic compds. for obtaining fine profile patterns
by processing with electron beam or x-ray)

IT 146-14-5 146-17-8, Riboflavin 5'-(dihydrogen phosphate) 487-21-8,
2,4(1H,3H)-Pteridinedione 490-59-5, Benzo[g]pteridine-2,4(1H,3H)-dione
945-24-4 1005-24-9 1086-80-2 1910-42-5 2236-60-4 24979-69-9
24979-70-2 24979-74-6 24980-18-5 25535-16-4 28721-76-8
31722-01-7 86690-04-2 149614-53-9 321164-59-4 345212-27-3
396098-38-7 437652-81-8 477705-24-1 482636-16-8 482636-17-9
482636-18-0 482636-19-1
RL: TEM (Technical or engineered material use); USES (Uses)

(**chemical-amplified neg.-working resist**
comps. containing heterocyclic compds. for obtaining fine profile patterns
by processing with electron beam or x-ray)

IT 162846-57-3P
RL: PNU (Preparation, unclassified); RCT (Reactant); TEM (Technical or
engineered material use); **PREP (Preparation)**; RACT (Reactant or
reagent); USES (Uses)

(crosslinking agent; **chemical-amplified neg.-working
resist** comps. containing heterocyclic compds. for obtaining fine
profile patterns by processing with electron beam or x-ray)

IT 161679-94-3P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
use); **PREP (Preparation)**; USES (Uses)

(crosslinking agent; **chemical-amplified neg.-working
resist** comps. containing heterocyclic compds. for obtaining fine
profile patterns by processing with electron beam or x-ray)

IT 3089-11-0 32449-09-5 185502-14-1 185502-15-2 197087-74-4
RL: TEM (Technical or engineered material use); USES (Uses)

(crosslinking agent; **chemical-amplified neg.-working
resist** comps. containing heterocyclic compds. for obtaining fine
profile patterns by processing with electron beam or x-ray)

IT 39153-56-5 138529-81-4 138529-84-7 241806-75-7 241806-76-8
258341-99-0 258872-05-8 312386-77-9 338445-31-1 341548-86-5
343629-51-6 437652-80-7 482636-20-4
RL: TEM (Technical or engineered material use); USES (Uses)

(photoacid generator; **chemical-amplified neg.-working
resist** comps. containing heterocyclic compds. for obtaining fine
profile patterns by processing with electron beam or x-ray)

L26 ANSWER 15 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:14489 CAPLUS

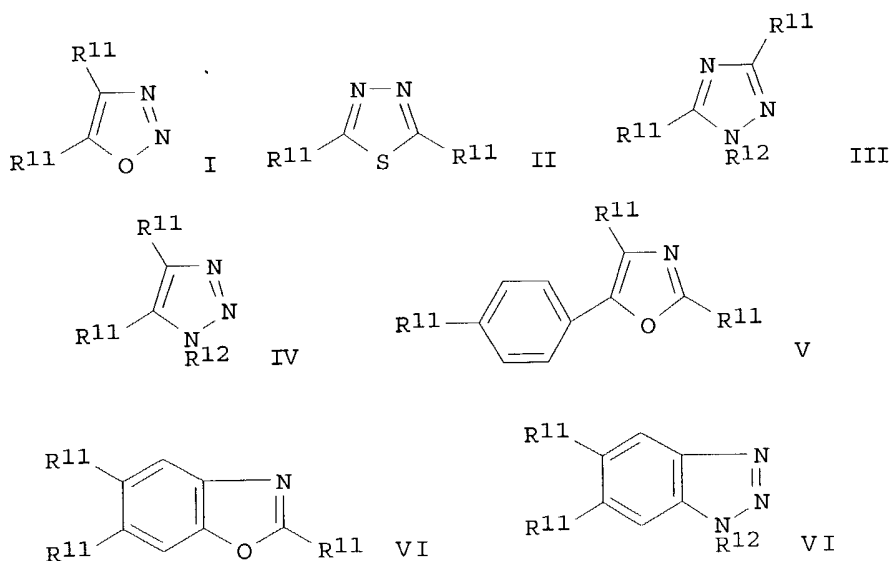
DOCUMENT NUMBER: 138:98186

TITLE: **Chemically-amplified**
negative-working **resist** compositions for
processing with electron beam or x-ray

INVENTOR(S): Takahashi, Omote; Shirakawa, Hiroshi; Adegawa, Yutaka
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 57 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003005356	A2	20030108	JP 2001-186786	20010620
PRIORITY APPLN. INFO.:			JP 2001-186786	20010620
OTHER SOURCE(S):		MARPAT 138:98186		

GI



AB The compns. comprise (A) compds. generating acids on irradiation with electron beam or x-ray, (B) polymers soluble in aqueous alkaline solns., and (D) ≥ 1 compds. selected from heterocycles defined by 9 Markush structures such as I, II, III, IV, V, VI, and VII (R_{11} = H, aliphatic, aromatic, mixed, or heterocyclic amine, amide, imide, ester, halo, halogen substituted alkyl or aryl, OH, carboxyl, thiol, cyano, nitro, formyl, sulfonyl, sulfonamide, acyl, aroyl, alkyl, alkyloxy, alkenyloxy, heterocyclic, aryl, alkenyl, aralkyl; R_{12} = H, aromatic or heterocyclic amine, halogen-substituted alkyl or aryl, OH, acyl, aroyl, alkyl, alkyloxy, alkenyloxy, heterocyclic, aryl, alkenyl, aralkyl, ester, carbonate ester). The **resists** have excellent stability against post exposure bake. **Resists** with high resolution and excellent profiles are obtained.

IT 349647-07-0P, Acrylonitrile-2-hydroxyethyl
 acrylate-2-[(4'-hydroxyphenyl)carbonyloxy]ethyl methacrylate

copolymer

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(chemical-amplified neg.-working resist

comps. containing heterocyclic compds. for obtaining fine profile patterns by processing with electron beam or x-ray)

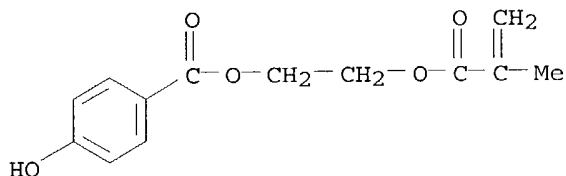
RN 349647-07-0 CAPLUS

CN Benzoic acid, 4-hydroxy-, 2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl ester, polymer with 2-hydroxyethyl 2-propenoate and 2-propenenitrile (9CI) (CA INDEX NAME)

CM 1

CRN 34573-66-5

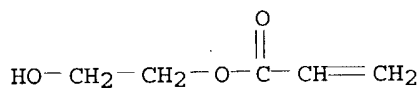
CMF C13 H14 O5



CM 2

CRN 818-61-1

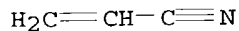
CMF C5 H8 O3



CM 3

CRN 107-13-1

CMF C3 H3 N



IC ICM G03F007-004

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 28

KOROMA EIC1700

ST **chem amplified** neg working photoresist electron beam;
x ray neg working photoresist; triazole additive neg working photoresist;
heterocyclic additive neg working photoresist

IT Negative photoresists
(**chemical-amplified**; **chemical-amplified**
neg.-working **resist** compns. containing heterocyclic compds. for
obtaining fine profile patterns by processing with electron beam or
x-ray)

IT 130501-59-6P, 4-Hydroxystyrene homopolymer acetate 173786-80-6DP,
4-Acetoxystyrene-4-methoxystyrene **copolymer**, hydrolyzed
349647-07-0P, Acrylonitrile-2-hydroxyethyl
acrylate-2-[(4'-hydroxyphenyl)carbonyloxy]ethyl methacrylate
copolymer
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
use); **PREP (Preparation)**; USES (Uses)
(**chemical-amplified** neg.-working **resist**
compns. containing heterocyclic compds. for obtaining fine profile patterns
by processing with electron beam or x-ray)

IT 110726-28-8, 1-[α -Methyl- α -(4-hydroxyphenyl)ethyl]-4-
[α,α -bis(4-hydroxyphenyl)ethyl]benzene
RL: RCT (Reactant); RACT (Reactant or reagent)
(**chemical-amplified** neg.-working **resist**
compns. containing heterocyclic compds. for obtaining fine profile patterns
by processing with electron beam or x-ray)

IT 92-71-7 1806-34-4 3073-87-8 3147-75-9 3864-99-1 4184-79-6
7128-64-5 17472-96-7 24979-69-9 24979-70-2 24979-74-6 24980-18-5
28539-02-8, 1H-Benzotriazole-1-methanol 148044-19-3 149614-53-9
150405-69-9 321164-59-4 345212-27-3 396098-38-7 477705-24-1
482654-95-5 482654-96-6 482654-97-7 482654-98-8 482654-99-9
482655-00-5 482655-01-6
RL: TEM (Technical or engineered material use); USES (Uses)
(**chemical-amplified** neg.-working **resist**
compns. containing heterocyclic compds. for obtaining fine profile patterns
by processing with electron beam or x-ray)

IT 162846-57-3P
RL: PNU (Preparation, unclassified); RCT (Reactant); TEM (Technical or
engineered material use); **PREP (Preparation)**; RACT (Reactant or
reagent); USES (Uses)
(crosslinking agent; **chemical-amplified** neg.-working
resist compns. containing heterocyclic compds. for obtaining fine
profile patterns by processing with electron beam or x-ray)

IT 161679-94-3P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
use); **PREP (Preparation)**; USES (Uses)
(crosslinking agent; **chemical-amplified** neg.-working
resist compns. containing heterocyclic compds. for obtaining fine
profile patterns by processing with electron beam or x-ray)

IT 3089-11-0 32449-09-5 185502-14-1 185502-15-2 197087-74-4
RL: TEM (Technical or engineered material use); USES (Uses)
(crosslinking agent; **chemical-amplified** neg.-working
resist compns. containing heterocyclic compds. for obtaining fine
profile patterns by processing with electron beam or x-ray)

IT 39153-56-5 138529-81-4 138529-84-7 241806-75-7 241806-76-8
 258341-99-0 258872-05-8 312386-77-9 338445-31-1 341548-86-5
 343629-51-6 437652-80-7 437652-81-8 482636-20-4

RL: TEM (Technical or engineered material use); USES (Uses)

(photoacid generator; **chemical-amplified** neg.-working
resist compns. containing heterocyclic compds. for obtaining fine
 profile patterns by processing with electron beam or x-ray)

L26 ANSWER 16 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:921380 CAPLUS

DOCUMENT NUMBER: 138:18052

TITLE: Alkenylphenol-based **copolymers** bearing
 acid-sensitive segments and selectively protected
 hydroxy-containing segments for **chemically**
amplified resists and their
 preparation

INVENTOR(S): Nobuhara, Yukikazu; Kobayashi, Asami

PATENT ASSIGNEE(S): Nippon Soda Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002348328	A2	20021204	JP 2001-154614	20010523
PRIORITY APPLN. INFO.:			JP 2001-154614	20010523

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The **copolymers** involve mer units represented by
 $\text{CH}_2\text{CR}_1[\text{C}_6\text{H}_4\text{OCR}_2\text{R}_3(\text{OR}_4)]$ [I; $\text{R}_1 = \text{H, Me}$; $\text{R}_2 = \text{H}$, C1-3 alkyl; $\text{R}_3 = \text{H}$, C1-6
 alkyl, C1-6 alkoxy; $\text{R}_4 = \text{open-chain or branched chain-containing C1-20 alkyl, C5-10 cycloalkyl, (substituted) C6-20 aryl}$; R_2 and R_3 , or R_2 and R_4 may
 form ring together], $\text{CH}_2\text{CR}_5(\text{C}_6\text{H}_4\text{OR}_6)$ (II; $\text{R}_5 = \text{H, Me}$; $\text{R}_6 = \text{acetal or ketal}$
 structure-free group which is dissociated or decomposed in acidic condition),
 and III (I, m, n = 1, 2; $\text{R}_7 = \text{H, Me}$; $\text{R}_8 = \text{H}$, open-chain or branched
 chain-containing C1-4 alkyl; $\text{R}_{21}\text{-R}_{30} = \text{H}$, C1-15 hydrocarbyl which may contain
 hetero atom, C1-15 hydrocarbylene which may contain hetero atom. or hetero
 atom. which may be bonded to each other and form ring; R_8 , R_{21} and R_{22} ,
 $\text{R}_{23}\text{-R}_{26}$, or R_{27} and R_{28} when n = 2, adjacent C may be directly bonded to
 each other and may form double bond). III may be adamantyl (meth)
acrylate-derived units. The **copolymers** are prepared by
 anionic polymerization of styrene derivs. giving mer units I, compds. giving
 mer
 units II, and compds. giving mer units III. The **copolymers** are

treated with weak acids, preferably aqueous H₂SO₄, for selective removal of protection groups for acetal structures and to give **copolymers** bearing OH-containing segments, acetal structure-containing segments, and **acrylic** derivative segments bearing acid-sensitive esters.

IT **477205-37-1P**, p-tert-Butoxystyrene-p-(1-ethoxyethoxy)styrene-2-methyladamantyl methacrylate **copolymer**

RL: **IMF (Industrial manufacture)**; RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)

(alkenylphenol-based **copolymers** prepared by anionic polymerization and their acid treatment for selective deprotection for **chemical amplified resists**)

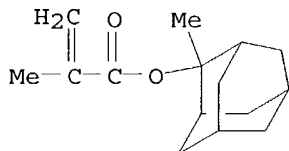
RN 477205-37-1 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 1-ethenyl-4-(1-ethoxyethoxy)benzene (9CI) (CA INDEX NAME)

CM 1

CRN 177080-67-0

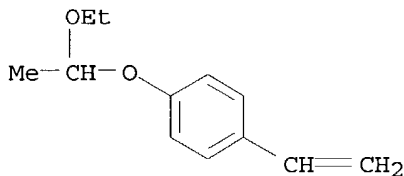
CMF C15 H22 O2



CM 2

CRN 157057-20-0

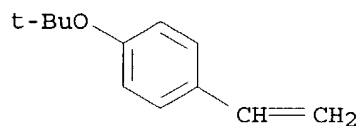
CMF C12 H16 O2



CM 3

CRN 95418-58-9

CMF C12 H16 O



IT 477205-37-1DP, hydrolyzed

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(alkenylphenol-based copolymers prepared by anionic polymerization and their acid treatment for selective deprotection for chemical amplified resists)

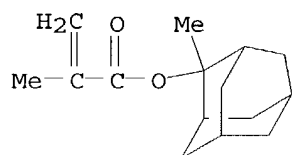
RN 477205-37-1 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 1-ethenyl-4-(1-ethoxyethoxy)benzene (9CI) (CA INDEX NAME)

CM 1

CRN 177080-67-0

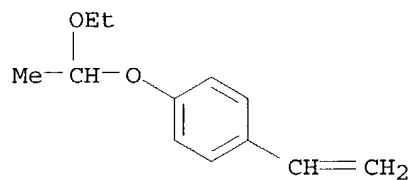
CMF C15 H22 O2



CM 2

CRN 157057-20-0

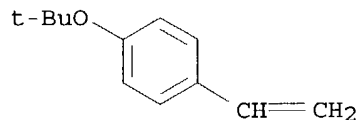
CMF C12 H16 O2



CM 3

CRN 95418-58-9

CMF C12 H16 O



IC ICM C08F212-14
ICS C08F008-12; C08F220-12; C08F297-02; G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 37, 38

ST **chem amplified resist** alkenylphenol
copolymer; alkenylphenol hydroxystyrene adamantyl methacrylate
copolymer resist; acetal alkenylphenol **chem**
amplified resist; anionic polymn alkenylphenol
copolymer structure control **resist**; tertiary
butoxystyrene hydroxystyrene methyladamantyl methacrylate
copolymer resist; acid labile group acetal selective
removal **resist**

IT **Photoresists**
Resists
(**chemical-amplified**; alkenylphenol-based
copolymers prepared by anionic polymerization and their acid treatment
for selective deprotection for **chemical amplified**
resists)

IT 477205-37-1P, p-tert-Butoxystyrene-p-(1-ethoxyethoxy)styrene-2-
methyladamantyl methacrylate **copolymer**
RL: IMF (**Industrial manufacture**); RCT (Reactant); PREP
(**Preparation**); RACT (Reactant or reagent)
(alkenylphenol-based **copolymers** prepared by anionic polymerization and
their acid treatment for selective deprotection for **chemical**
amplified resists)

IT 477205-37-1DP, hydrolyzed
RL: IMF (**Industrial manufacture**); TEM (Technical or engineered
material use); PREP (**Preparation**); USES (Uses)
(alkenylphenol-based **copolymers** prepared by anionic polymerization and
their acid treatment for selective deprotection for **chemical**
amplified resists)

L26 ANSWER 17 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:799428 CAPLUS

DOCUMENT NUMBER: 139:76209

TITLE: Synergic effect of acetal-based resin by blending with
poly[4-hydroxystyrene-co-tert-butyl **acrylate**
-co-4-(3-cyano-1,5-di-tert-butyl carbonylpentylstyrene
(P(HS-TBA-CBPS)) on the profiles of 248 nm
chemically amplified resist

AUTHOR(S): Kim, Hyun-Jin; Chung, Yoon-Sik; Lee, Dong Hwal; Cho,
Sook Hee; Im, Kwang Hwui; Yim, Yun-Gill; Kim,
Deog-Bae; Kim, Jae-Hyun

CORPORATE SOURCE: Electron. Mater. Div., DongJin Semichem Co., Ltd.,

SOURCE: Kwasung-Kun Kyungki-do, 445-930, S. Korea
 Proceedings of SPIE-The International Society for
 Optical Engineering (2002), 4690(Pt. 2, Advances in
 Resist Technology and Processing XIX), 651-659
 CODEN: PSISDG; ISSN: 0277-786X
 PUBLISHER: SPIE-The International Society for Optical Engineering
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The authors prepared terpolymer of p-hydroxystyrene, tert-Bu
acrylate and 4-(3-cyano-1,5-di-tert-butylcarbonylpentylstyrene)
 (P(HS-TBA-CBPS)) and discussed a characteristic of prepared polymer. As
 TBA, newly introduced monomer increases, contrast of **resist** is
 improved. And the prepared polymer was blended with poly(4-hydroxystyrene-
 co-4-(1-ethylethoxystyrene)) (EE-PHS). The synergic effect on a
resist performance in KrF lithog. by the combination of high and
 low activation energy system was shown. A **resist** using blending
 polymer was shown a good performance on resolution and LER (line edge
 roughness) than **resist** using polymer sep. Based on the results,
 it was found that high performance KrF **resist** could be obtained
 by optimization of polymer blending.

IT 328238-42-2P

RL: PRP (Properties); SPN (Synthetic preparation); TEM
 (Technical or engineered material use); PREP (Preparation); USES
 (Uses)
 (lithog. properties of deep-UV **chemical amplification**
 photoresist containing polymer blend of hydroxystyrene terpolymer and
 hydroxystyrene **copolymer**)

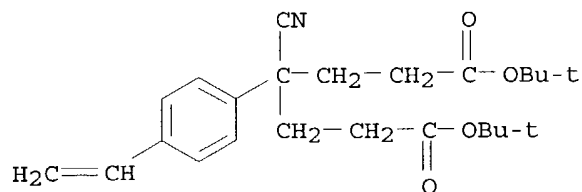
RN 328238-42-2 CAPLUS

CN Heptanedioic acid, 4-cyano-4-(4-ethenylphenyl)-, bis(1,1-dimethylethyl)
 ester, polymer with 1,1-dimethylethyl 2-propenoate and 4-ethenylphenol
 (9CI) (CA INDEX NAME)

CM 1

CRN 328238-41-1

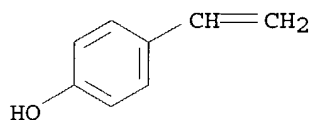
CMF C24 H33 N O4



CM 2

CRN 2628-17-3

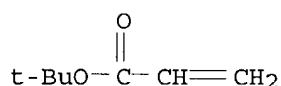
CMF C8 H8 O



CM 3

CRN 1663-39-4

CMF C7 H12 O2



- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST deep UV lithog **chem amplification** photoresist polymer blend; hydroxystyrene tertbutyl **acrylate** cyanotertbutylcarbonylpentylstyrene terpolymer blend ethylethoxystyrene **copolymer**
- IT **Photoresists**
 (deep-UV, **chemical amplification**; lithog. properties of **chemical amplification** photoresist for KrF lithog. containing polymer blend of hydroxystyrene terpolymer and hydroxystyrene **copolymer**)
- IT Polymer blends
 RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
 (lithog. properties of deep-UV **chemical amplification** photoresist containing polymer blend of hydroxystyrene terpolymer and hydroxystyrene **copolymer**)
- IT Polydispersity
 Polymerization
 (polymerization reaction in synthesis of terpolymer for use in deep-UV **chemical amplification** photoresist based on polymer blend)
- IT 84540-57-8, Propylene glycol monomethyl ether acetate
 RL: NUU (Other use, unclassified); USES (Uses)
 (casting solvent; lithog. properties of deep-UV **chemical amplification** photoresist containing polymer blend of hydroxystyrene terpolymer and hydroxystyrene **copolymer**)
- IT 75-59-2, Tetramethylammonium hydroxide
 RL: NUU (Other use, unclassified); USES (Uses)
 (developer; lithog. properties of deep-UV **chemical amplification** photoresist containing polymer blend of hydroxystyrene terpolymer and hydroxystyrene **copolymer**)

IT 24979-70-2DP, 4-Hydroxystyrene homopolymer, reaction product with Et vinyl ether **328238-42-2P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); USES
(Uses)

(lithog. properties of deep-UV **chemical amplification**
photoresist containing polymer blend of hydroxystyrene terpolymer and
hydroxystyrene **copolymer**)

IT 1663-39-4, Tert-Butyl **acrylate** 2628-16-2, 4-Acetoxystyrene
328238-41-1

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(polymerization reaction in synthesis of terpolymer for use in deep-UV
chemical amplification photoresist based on polymer
blend)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 18 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:759254 CAPLUS

DOCUMENT NUMBER: 138:114952

TITLE: Positive **resist** for KrF excimer laser
lithography

AUTHOR(S): Park, S. J.; Kim, I. H.; Kang, Y. J.; Lee, H.; Lee, S.
H.; Choi, S. J.

CORPORATE SOURCE: Department of Chemistry, Hanyang University, Seoul,
133-791, S. Korea

SOURCE: Journal of Vacuum Science & Technology, B:
Microelectronics and Nanometer Structures (2002),
20(5), 2108-2112
CODEN: JVTBD9; ISSN: 0734-211X

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In order to develop a new pos.-tone, **chemical amplified**
photoresist for 248 nm lithog., a **copolymer** containing
acrylic silicon moiety was synthesized. The **copolymer**
of 1,3-bis(trimethylsilyl)isopropyl methacrylate and 4-hydroxystyrene was
prepared by free radical polymerization The polymer structure, properties and
acid

catalyzed deprotection were evaluated by ¹H NMR, Fourier transform IR, UV,
thermogravimetric anal. and gel permeation chromatog. This polymer is
thermally stable up to 150 ° and is suitably transparent at the KrF
laser output wavelength (248 nm). The lithog. evaluation shows the
capability of 0.28 μm resolution using a KrF excimer laser stepper.

IT **313484-48-9P**, 4-Hydroxystyrene-1,3-Bis(trimethylsilyl)isopropyl
methacrylate **copolymer**

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
process); PRP (Properties); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); PROC
(Process); USES (Uses)

(structure and properties and lithog. evaluation of
hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate

copolymer as pos.-tone **chemical amplified**
photoresist for 248 nm exposures)

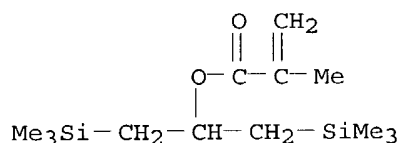
RN 313484-48-9 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(trimethylsilyl)-1-
[(trimethylsilyl)methyl]ethyl ester, polymer with 4-ethenylphenol (9CI)
(CA INDEX NAME)

CM 1

CRN 195044-28-1

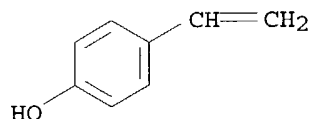
CMF C13 H28 O2 Si2



CM 2

CRN 2628-17-3

CMF C8 H8 O



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

ST hydroxystyrene trimethylsilylisopropyl methacrylate **copolymer**
pos **chem amplified** photoresist lithog; deep UV
photolithog hydroxystyrene trimethylsilylisopropyl methacrylate
copolymer amplified photoresist

IT Positive **photoresists**
(**chemical amplified**; lithog. evaluation of
hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate
copolymer as pos.-tone **chemical amplified**
photoresist for 248 nm exposures)

IT UV and visible spectra
(photoacid generator; structure and properties and lithog. evaluation
of hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate
copolymer as pos.-tone **chemical amplified**
photoresist for 248 nm exposures)

IT Polymerization
(radical; preparation and structure and lithog. evaluation of
hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate

copolymer as pos.-tone chemical amplified photoresist for 248 nm exposures)

IT IR spectra
Thermal stability
(structure and properties and lithog. evaluation of hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate **copolymer as pos.-tone chemical amplified photoresist for 248 nm exposures)**

IT 17891-78-0
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(acid-catalyzed deprotection mechanism of hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate **copolymer photoresist)**

IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; lithog. evaluation of hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate **copolymer as pos.-tone chemical amplified photoresist for 248 nm exposures)**

IT 66003-78-9, Triphenylsulfonium triflate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; lithog. evaluation of hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate **copolymer as pos.-tone chemical amplified photoresist for 248 nm exposures)**

IT 78-67-1, AIBN
RL: CAT (Catalyst use); USES (Uses)
(preparation and structure and lithog. evaluation of hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate **copolymer as pos.-tone chemical amplified photoresist for 248 nm exposures)**

IT 2628-17-3, 4-Hydroxystyrene 195044-28-1, 1,3-Bis(trimethylsilyl)isopropyl methacrylate
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation and structure and lithog. evaluation of hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate **copolymer as pos.-tone chemical amplified photoresist for 248 nm exposures)**

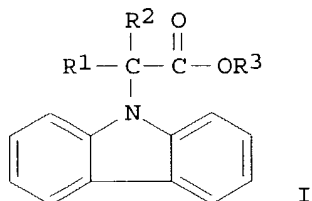
IT 313484-48-9P, 4-Hydroxystyrene-1,3-Bis(trimethylsilyl)isopropyl methacrylate **copolymer**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (**Synthetic preparation**); TEM (Technical or engineered material use); PREP (**Preparation**); PROC (Process); USES (Uses)
(structure and properties and lithog. evaluation of hydroxystyrene-bis(trimethylsilyl)isopropyl methacrylate **copolymer as pos.-tone chemical amplified photoresist for 248 nm exposures)**

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

ACCESSION NUMBER: 2002:693159 CAPLUS
DOCUMENT NUMBER: 137:202096
TITLE: Carbazole derivative and **chemically amplified** radiation-sensitive resin composition
INVENTOR(S): Nagai, Tomoki; Numata, Jun; Kusumoto, Shirou; Kobayashi, Eiichi
PATENT ASSIGNEE(S): JSR Corporation, Japan
SOURCE: Eur. Pat. Appl., 48 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1238972	A1	20020911	EP 2002-4937	20020305
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2002265446	A2	20020918	JP 2001-61922	20010306
US 2002172885	A1	20021121	US 2002-87735	20020305
PRIORITY APPLN. INFO.:			JP 2001-61922	A 20010306
OTHER SOURCE(S):		MARPAT 137:202096		

GI



- AB A carbazole derivative I, wherein R1 and R2 individually represent a hydrogen atom or a monovalent organic group, or R1 and R2 form, together with the carbon atom to which R1 and R2 bond, a divalent organic group having a 3-8 member carbocyclic structure or a 3-8 member heterocyclic structure, and R3 represents a hydrogen atom or a monovalent organic group, is suitable as an additive for increasing sensitivity of a **chemical amplified resist**. A **chemical amplified** radiation-sensitive resin composition (e.g., a p-hydroxystyrene polymer), useful as a **chemical amplified resist**, comprising the carbazole derivative is also disclosed. I (R1, R2, R3 = H) was prepared from carbazole and bromoacetic acid.
- IT **221549-67-3DP**, p-Acetoxystyrene-tert-butyl **acrylate**-styrene **copolymer**, hydrolyzed, reaction products with unsatd ethers
RL: **IMF** (Industrial manufacture); TEM (Technical or engineered

material use); **PREP (Preparation)**; USES (Uses)
 (carbazole derivative and **chemical amplified**
 radiation-sensitive resin composition)

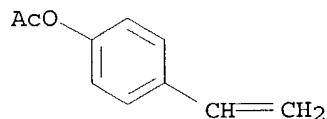
RN 221549-67-3 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and
 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 2628-16-2

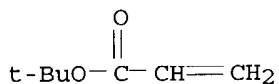
CMF C10 H10 O2



CM 2

CRN 1663-39-4

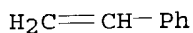
CMF C7 H12 O2



CM 3

CRN 100-42-5

CMF C8 H8



IC ICM C07D209-86

ICS G03F007-038; C08L025-18; C08F012-24; C08F008-02

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 74

ST carbazole deriv additive photoresist

IT **Photoresists**

(carbazole derivative and **chemical amplified**
 radiation-sensitive resin composition)

IT 524-80-1P, 9H-Carbazole-9-acetic acid 454470-51-0P 454470-52-1P
 454470-53-2P 454470-54-3P 454470-55-4P 454470-57-6P 454470-62-3P

RL: **IMF (Industrial manufacture)**; **PREP (Preparation)**

KOROMA EIC1700

(carbazole derivative and **chemical amplified**
radiation-sensitive resin composition)

IT 109-92-2DP, Ethyl vinyl ether, reaction products with poly(p-hydroxystyrene) 928-55-2DP, Ethyl-1-propenyl ether, reaction products with poly(p-hydroxystyrene) 34619-03-9DP, Di-tert-butyl carbonate, reaction products with poly(p-hydroxystyrene) 95418-60-3DP, Poly(p-tert-butoxystyrene), hydrolyzed, reaction products with unsatd ethers 221549-67-3DP, p-Acetoxy styrene-tert-butyl acrylate-styrene copolymer, hydrolyzed, reaction products with unsatd ethers 406198-64-9DP, hydrolyzed, reaction products with unsatd ethers 454470-63-4DP, hydrolyzed, reaction products with unsatd ethers 454470-64-5DP, hydrolyzed, reaction products with unsatd ethers

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(carbazole derivative and **chemical amplified**
radiation-sensitive resin composition)

IT 79-08-3, Bromoacetic acid 86-74-8, Carbazole 5437-45-6, Benzyl bromoacetate 6289-39-0, Cyclohexyl bromoacetate 29921-57-1, Isopropyl bromoacetate 39149-80-9, tert-Butyl 2-bromopropionate 60277-70-5 454470-59-8

RL: RCT (Reactant); RACT (Reactant or reagent)

(carbazole derivative and **chemical amplified**
radiation-sensitive resin composition)

IT 24979-70-2D, Poly(p-hydroxystyrene), acid-dissociable group-substituted 24979-74-6D, p-Hydroxy styrene-styrene copolymer, acid-dissociable group-substituted 126141-08-0D, acid-dissociable group-substituted

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(radiation-sensitive resin; carbazole derivative and **chemical amplified** radiation-sensitive resin composition)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 20 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:674636 CAPLUS

DOCUMENT NUMBER: 137:224109

TITLE: Non-**chemically amplified** water and

aqueous base developable negative photoresist

INVENTOR(S): Angelopoulos, Marie; Babich, Edward D.; Babich, Inna V.; Babich, Katherina E.; Bucchignano, James J.; Petrillo, Karen E.; Rishton, Steven A.

PATENT ASSIGNEE(S): International Business Machines Corporation, USA

SOURCE: U.S. Pat. Appl. Publ., 13 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2002123010	A1	20020905	US 2001-796445	20010302
US 6617086	B2	20030909		
US 6251569	B1	20010626	US 1999-373555	19990813

PRIORITY APPLN. INFO.: US 1999-373555 A3 19990813

AB A new group of non-chemical amplified neg. tone water/aqueous base developable (photo) resists based on redistribution of carbon-oxygen bonds in pendant ester groups of the polymers has been found. The compns. according to the present invention do not require any addnl. photocatalysts, photoinitiators or added crosslinking agents.

IT 454716-57-5P, p-Hydroxystyrene-methoxyethoxyethyl methacrylate copolymer
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(non-chemical amplified water and aqueous base developable neg. photoresist)

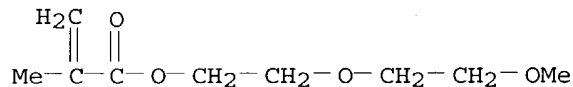
RN 454716-57-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(2-methoxyethoxy)ethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 45103-58-0

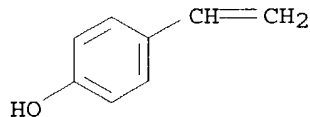
CMF C9 H16 O4



CM 2

CRN 2628-17-3

CMF C8 H8 O



IT 454716-59-7P, p-Acetoxystyrene-methoxyethoxyethyl methacrylate copolymer 454716-60-0P, p-Hydroxyphenyl methacrylamide-methoxyethoxyethyl methacrylate copolymer 454716-65-5P, Methacrylic acid-phenoxyethyl methacrylate copolymer

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(non-chemical amplified water and aqueous base developable
neg. photoresist)

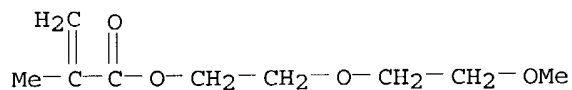
RN 454716-59-7 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(2-methoxyethoxy)ethyl ester, polymer with
4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 45103-58-0

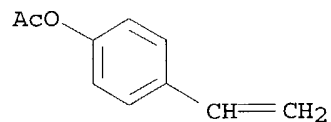
CMF C9 H16 O4



CM 2

CRN 2628-16-2

CMF C10 H10 O2



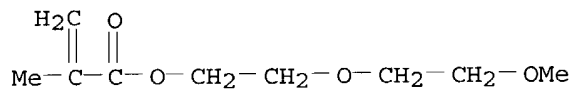
RN 454716-60-0 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-(2-methoxyethoxy)ethyl ester, polymer with
N-(4-hydroxyphenyl)-2-methyl-2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 45103-58-0

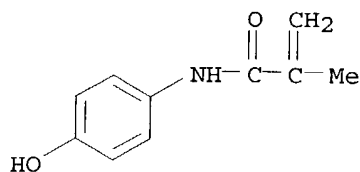
CMF C9 H16 O4



CM 2

CRN 19243-95-9

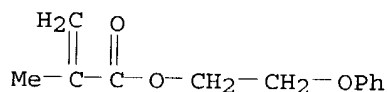
CMF C10 H11 N O2



RN 454716-65-5 CAPLUS
 CN 2-Propenoic acid, 2-methyl-, polymer with 2-phenoxyethyl
 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

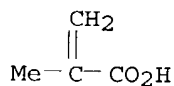
CM 1

CRN 10595-06-9
 CMF C12 H14 O3



CM 2

CRN 79-41-4
 CMF C4 H6 O2



IC ICM G03F007-004
 ICS G03F007-30
 NCL 430325000
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 38
 ST water aq base developable neg photoresist
 IT Negative **photoresists**
 (non-chemical amplified water and aqueous base developable
 neg. photoresist)
 IT 454716-57-5P, p-Hydroxystyrene-methoxyethoxyethyl methacrylate
 copolymer
 RL: PRP (Properties); SPN (Synthetic preparation); TEM
 (Technical or engineered material use); PREP (Preparation); USES
 (Uses)
 (non-chemical amplified water and aqueous base developable
 neg. photoresist)

IT 61412-60-0P, Poly(methoxyethoxyethyl methacrylate) 130425-25-1P, Methoxyethoxyethyl methacrylate-methyl methacrylate **copolymer** 454716-52-0P, 4-Methacryloyloxyethyl trimellitic anhydride-methoxyethoxyethyl methacrylate-tetrahydrofurfuryl methacrylate **copolymer** 454716-53-1P, Methoxyethoxyethyl methacrylate-4-methacryloyloxyethyl trimellitic anhydride **copolymer** 454716-54-2P, Methacrylic acid-methoxyethoxyethyl methacrylate **copolymer** 454716-55-3P, Methoxyethoxyethyl methacrylate-2-acrylamido-2-methyl-1-propanesulfonic acid **copolymer** 454716-56-4P, Methoxyethoxyethyl methacrylate-4-methacryloyloxyethyl trimellitic anhydride-dicyclopentenyl methacrylate **copolymer** 454716-57-5DP, hydrolyzed derivs. 454716-58-6P, Methoxyethoxyethyl methacrylate-styrene **copolymer** 454716-59-7P, p-Acetoxystyrene-methoxyethoxyethyl methacrylate **copolymer** 454716-60-0P, p-Hydroxyphenyl methacrylamide-methoxyethoxyethyl methacrylate **copolymer** 454716-61-1P, 2-Bromoethyl methacrylate-methoxyethoxyethyl methacrylate **copolymer** 454716-62-2P, 1-Adamantyl methacrylate-Methoxyethoxyethyl methacrylate **copolymer** 454716-63-3P, Methoxyethoxyethyl methacrylate-norbornene-maleic anhydride-methacrylic acid **copolymer** 454716-64-4P, Methoxyethoxyethyl methacrylate-tris(trimethylsiloxy)silylpropyl methacrylate **copolymer** 454716-65-5P, Methacrylic acid-phenoxyethyl methacrylate **copolymer**

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(non-chemical amplified water and aqueous base developable neg. photoresist)

IT 454716-66-6, Methoxyethoxyethyl methacrylate-norbornene **copolymer**

RL: TEM (Technical or engineered material use); USES (Uses)
(non-chemical amplified water and aqueous base developable neg. photoresist)

L26 ANSWER 21 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:642506 CAPLUS

DOCUMENT NUMBER: 137:317797

TITLE: High-performance **resist** materials for ArF excimer laser and electron-beam lithography

AUTHOR(S): Nozaki, Koji; Yano, Ei

CORPORATE SOURCE: Chemical Society of Japan, Japan

SOURCE: Fujitsu Scientific & Technical Journal (2002), 38(1), 3-12

CODEN: FUSTA4; ISSN: 0016-2523

PUBLISHER: Fujitsu Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB High-performance **resist** materials for ArF (argon fluoride) excimer laser ($\lambda = 193$ nm) and electron-beam (EB) lithog. for fabricating 100 nm-level and beyond ULSIs have been developed. For the base polymers of the ArF **resists**, a novel methacrylate was employed as a base polymer whose ester groups have chromophores with a low extinction coefficient at 193 nm. A polycyclic hydrocarbon substituent, called

adamantyl, and lactone substituents were introduced for acid-labile ester groups in the methacrylate polymer. The alicyclic group provides superior sensitivity, resolution, and dry-etch **resistance**, while the lactone groups afford compatibility with a standard TMAH (tetramethylammonium hydroxide) developer, good resolution, and adhesion to Si substrates. For the base polymer of the EB **resist**, the above-mentioned adamantyl methacrylate unit was applied in a vinylphenol **copolymer**. By optimizing the compns. of these **resists** and the process conditions, the authors achieved a 100 nm line and space pattern by ArF excimer laser lithog. and a 59 nm hole pattern by EB lithog.

IT 159296-87-4, tert-Butyl **acrylate**-p-vinylphenol **copolymer**

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(comparison; imaging property of **resists** for electron-beam lithog. containing **copolymer** of vinylphenol and methacrylate monomer with adamantyl- or lactone substituents)

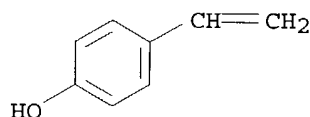
RN 159296-87-4 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

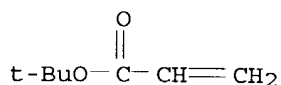
CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



IT 186585-53-5P, p-Hydroxystyrene-2-Methyl-2-adamantyl methacrylate **copolymer** 301153-46-8P, 2-Ethyl-2-adamantyl methacrylate-p-hydroxystyrene **copolymer**

RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(imaging property of **resists** for electron-beam lithog. containing **copolymer** of vinylphenol and methacrylate monomer with

adamantyl- or lactone substituents)

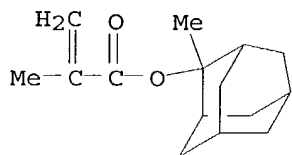
RN 186585-53-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester,
polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 177080-67-0

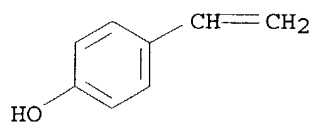
CMF C15 H22 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



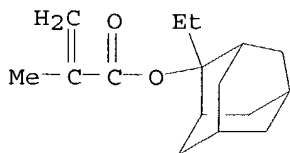
RN 301153-46-8 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester,
polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 209982-56-9

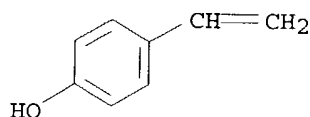
CMF C16 H24 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST **resist** electron beam lithog vinylphenol adamantyl methacrylate **copolymer**; vacuum UV lithog photoresist alicyclic group contg methacrylate polymer; lactone adamantyl methacrylate **copolymer**
- IT Electron beam **resists**
(**chemical-amplified**; imaging property of **resists** for electron-beam lithog. containing **copolymer** of vinylphenol and methacrylate monomer with adamantyl- or lactone substituents)
- IT Etching
(plasma; imaging property of **photoresists** for vacuum-UV lithog. containing methacrylate **copolymer** with adamantyl- and lactone substituents)
- IT Glass transition temperature
(properties and preliminary imaging characteristics of methacrylate **copolymers** with adamantyl- or lactone substituents in relation to to photoresist application)
- IT Absorptivity
(**resist** materials for ArF excimer laser- and electron-beam lithog. based on **copolymer** containing methacrylate monomers with adamantyl- or lactone substituents)
- IT Etching
(sputter, ion-beam, reactive; dry-etch rates of **resists** for electron-beam lithog. containing **copolymer** of vinylphenol and methacrylate monomer with adamantyl- or lactone substituents)
- IT **Photoresists**
(vacuum-UV, **chemical-amplified**; imaging property of **photoresists** for vacuum-UV lithog. containing methacrylate **copolymer** with adamantyl- and lactone substituents)
- IT 159296-87-4, tert-Butyl **acrylate**-p-vinylphenol **copolymer**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(comparison; imaging property of **resists** for electron-beam lithog. containing **copolymer** of vinylphenol and methacrylate monomer with adamantyl- or lactone substituents)
- IT 75-59-2, Tetramethylammonium hydroxide
RL: NUU (Other use, unclassified); USES (Uses)
(developer; **resist** materials for ArF excimer laser- and electron-beam lithog. based on **copolymer** containing methacrylate monomers with adamantyl- or lactone substituents)
- IT 177080-68-1P, 2-Methyl-2-adamantyl methacrylate-mevalonic lactone

methacrylate copolymer

RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(imaging property of **chemical amplified**

photoresists for vacuum-UV lithog. containing methacrylate

copolymer with adamantyl- and lactone substituents)

IT 186585-53-5P, p-Hydroxystyrene-2-Methyl-2-adamantyl methacrylate
copolymer 301153-46-8P, 2-Ethyl-2-adamantyl

methacrylate-p-hydroxystyrene copolymer

RL: PNU (Preparation, unclassified); PRP (Properties); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(imaging property of **resists** for electron-beam lithog. containing

copolymer of vinylphenol and methacrylate monomer with

adamantyl- or lactone substituents)

IT 66003-78-9, Triphenylsulfonium triflate

RL: NUU (Other use, unclassified); USES (Uses)

(photoacid generator; **resist** materials for ArF excimer laser-

and electron-beam lithog. based on **copolymer** containing

methacrylate monomers with adamantyl- or lactone substituents)

IT 75-73-0, Carbon tetrafluoride 7440-37-1, Argon, uses 7782-50-5,
Chlorine, uses

RL: NUU (Other use, unclassified); USES (Uses)

(plasma etch; dry etch **resistance** of **photoresists**

for vacuum-UV lithog. containing methacrylate **copolymer** with

adamantyl- and lactone substituents)

IT 177080-66-9P, Mevalonic lactone methacrylate 177080-67-0P,
2-Methyl-2-adamantyl methacrylate 209982-56-9P, 2-Ethyl-2-adamantyl
methacrylate

RL: RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)

(preparation of base polymers of **resists** for ArF excimer laser-
and electron-beam lithog.)

IT 181020-28-0, Mevalonic lactone methacrylate homopolymer 181020-29-1,
Poly(2-Methyl-2-adamantyl methacrylate)

RL: PRP (Properties)

(properties and preliminary imaging characteristics of methacrylate
copolymers with adamantyl- or lactone substituents in relation
to to photoresist application)

IT 96-48-0, Butyrolactone 97-64-3, Ethyl lactate 108-94-1, Cyclohexanone,
uses 617-35-6, Ethyl pyruvate

RL: NUU (Other use, unclassified); USES (Uses)

(**resist** solvent; imaging property of **photoresists**

for vacuum-UV lithog. containing methacrylate **copolymer** with

adamantyl- and lactone substituents)

IT 108-65-6, Propylene glycol-1-methyl ether-2-acetate

RL: NUU (Other use, unclassified); USES (Uses)

(solvent; **resist** materials for ArF excimer laser- and

electron-beam lithog. based on **copolymer** containing methacrylate

monomers with adamantyl- or lactone substituents)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 22 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:591966 CAPLUS
 DOCUMENT NUMBER: 137:147755
 TITLE: Polymers and their use in **resists** and
 pattern formation
 INVENTOR(S): Harada, Yuji; Watanabe, Atsushi; Hatakeyama, Jun;
 Kawai, Yoshio; Sasako, Masaru; Endo, Masataka;
 Kishimura, Shinji; Otani, Mitsutaka; Miyazawa, Satoru;
 Tsutsumi, Kentaro; Maeda, Kazuhiko
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan;
 Matsushita Electric Industrial Co., Ltd.; Central
 Glass Co., Ltd.
 SOURCE: Jpn. Kokai Tokkyo Koho, 20 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002220417	A2	20020809	JP 2001-346959	20011113
PRIORITY APPLN. INFO.:			JP 2000-353868	A 20001121

AB The polymers have repeating units of [CR3(C6(R1)a(OR2)bH5-a-b)CR4R5]i and [CR6(CO2R9)CR7R8]j [R1 = F, fluorinated alkyl; R2 = H, acid-unstable group; R3-R8 = H, F, linear, cyclic or branched C1-20 (un)fluorinated alkyl; R9 = acid-unstable group, adhesive group, F-containing high-transparency group; i, j > 0; 0 < a < 5; 0 < b < 5; 0 < a + b ≤ 5]. **Resists** containing the polymers or **chemical-amplified pos.-working resists** containing the polymers, organic solvents, acid generators, and optionally basic compds. and/or dissoln. inhibitors, are claimed. A pattern is formed by applying the **resists** on a substrate, heating, exposing with ≤300 nm-high-energy rays or electron beam through a photomask, heating optionally, and developing with a solution The **resists** show high sensitivity to ≤170 nm-energy rays, adhesion to substrate, alkali developability, and resolution

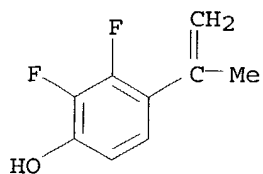
IT 445004-26-2P 445004-29-5P 445004-32-0P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (fluorinated hydroxystyrene-F-containing **acrylate copolymers** for pos.-working **resists** and pattern formation)

RN 445004-26-2 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 2,3-difluoro-4-(1-methylethenyl)phenol and 2,2,2-trifluoroethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

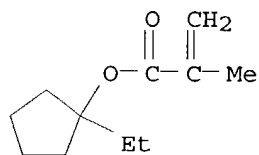
CRN 445004-25-1
 CMF C9 H8 F2 O



CM 2

CRN 266308-58-1

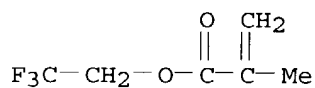
CMF C11 H18 O2



CM 3

CRN 352-87-4

CMF C6 H7 F3 O2



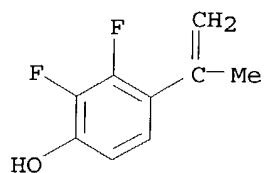
RN 445004-29-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethylbicyclo[2.2.1]hept-2-yl ester, polymer with 2,3-difluoro-4-(1-methylethenyl)phenol and 2,2,2-trifluoroethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 445004-25-1

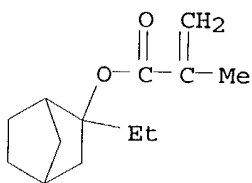
CMF C9 H8 F2 O



CM 2

CRN 330595-98-7

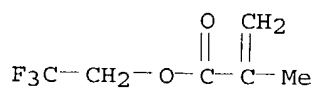
CMF C13 H20 O2



CM 3

CRN 352-87-4

CMF C6 H7 F3 O2



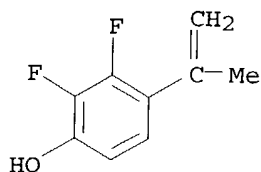
RN 445004-32-0 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.1.3,7]dec-2-yl ester, polymer with 2,3-difluoro-4-(1-methylethenyl)phenol and 2,2,2-trifluoroethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 445004-25-1

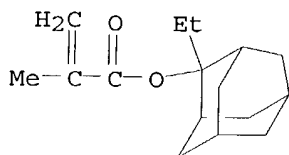
CMF C9 H8 F2 O



CM 2

CRN 209982-56-9

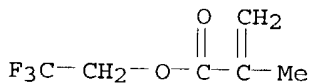
CMF C16 H24 O2



CM 3

CRN 352-87-4

CMF C6 H7 F3 O2



- IC ICM C08F212-12
ICS C08F220-10; G03F007-039; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 37
- ST fluoropolymer **resist** pattern formation high energy ray;
chem amplified pos working **resist**
fluoropolymer; fluorinated hydroxystyrene **acrylate**
copolymer photoresist
- IT Positive **photoresists**
(UV; fluorinated hydroxystyrene-F-containing **acrylate**
copolymers for pos.-working **resists** and pattern
formation)
- IT Fluoropolymers, preparation
RL: **IMF** (**Industrial manufacture**); TEM (Technical or engineered
material use); **PREP** (**Preparation**); USES (Uses)
(**acrylic**; fluorinated hydroxystyrene-F-containing

- acrylate copolymers** for pos.-working **resists** and pattern formation)
- IT **Resists**
(pos.-working radiation-sensitive; fluorinated hydroxystyrene-F-containing **acrylate copolymers** for pos.-working **resists** and pattern formation)
- IT Electron beam **resists**
(pos.-working; fluorinated hydroxystyrene-F-containing **acrylate copolymers** for pos.-working **resists** and pattern formation)
- IT 66003-76-7, Diphenyliodonium trifluoromethanesulfonate 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate
RL: CAT (Catalyst use); USES (Uses)
(acid generator; fluorinated hydroxystyrene-F-containing **acrylate copolymers** for pos.-working **resists** and pattern formation)
- IT 139254-88-9
RL: MOA (Modifier or additive use); USES (Uses)
(dissoln. inhibitor; fluorinated hydroxystyrene-F-containing **acrylate copolymers** for pos.-working **resists** and pattern formation)
- IT **445004-26-2P 445004-29-5P 445004-32-0P**
RL: **IMF** (Industrial manufacture); TEM (Technical or engineered material use); **PREP** (Preparation); USES (Uses)
(fluorinated hydroxystyrene-F-containing **acrylate copolymers** for pos.-working **resists** and pattern formation)
- IT 102-82-9, Tributylamine
RL: MOA (Modifier or additive use); USES (Uses)
(fluorinated hydroxystyrene-F-containing **acrylate copolymers** for pos.-working **resists** and pattern formation)

L26 ANSWER 23 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:447174 CAPLUS
DOCUMENT NUMBER: 137:39321
TITLE: Positively working **resist** composition containing fluoropolymer for high resolution
INVENTOR(S): Adegawa, Yutaka; Tan, Shiro; Sorori, Tadahiro
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 124 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002169295	A2	20020614	JP 2001-272097	20010907
PRIORITY APPLN. INFO.:			JP 2000-276896	A 20000912
			JP 2000-283963	A 20000919

OTHER SOURCE(S): MARPAT 137:39321

AB The **resist** composition contains (A) (a1) polymers with acid-sensitive alkali solubility, (a2) alkali-soluble polymers and low-mol-weight compds. with acid-sensitive alkali solubility (dissoln. inhibitors), or (a3) polymers with acid-sensitive alkali solubility and dissoln. inhibitors, (B) acid generator sensitive to actinic ray or radiation, and (C) polymers having fluoroaliph. groups in side chains, where the groups are obtained from fluoroaliph. compds. manufactured by telomerization or oligomerization. Also claimed is a **chemical amplified pos. resist** composition sensitive to electron beam or x-ray containing (A) acid generator

and (B) alkali-soluble polymers with weight-average mol. weight >3000 and $\leq 300,000$ which satisfy the following conditions: (1) the polymers contain ≥ 1 of repeating unit from monomers containing C6-20 aromatic ring and ethylenically

unsatd. group and (2) the aromatic ring has controlled number of π electrons and the substituents of the aromatic ring have controlled number of unshared electron pairs. The **chemical amplified resist** composition has high resolution, high line-width reproducibility, and good pattern profiles.

IT 159296-87-4P, tert-Butyl acrylate-p-hydroxystyrene copolymer 325143-38-2P, tert-Butyl acrylate -p-(1-ethoxyethoxy)styrene-p-hydroxystyrene copolymer

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos. working resist composition containing fluoropolymer for high resolution)

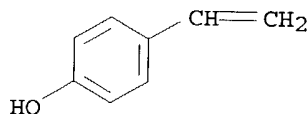
RN 159296-87-4 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

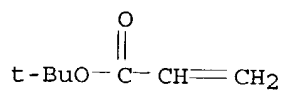
CMF C8 H8 O



CM 2

CRN 1663-39-4

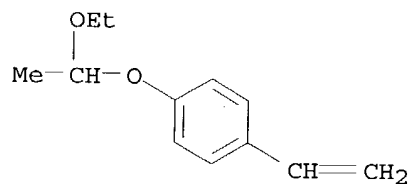
CMF C7 H12 O2



RN 325143-38-2 CAPLUS
 CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with
 1-ethenyl-4-(1-ethoxyethoxy)benzene and 4-ethenylphenol (9CI) (CA INDEX
 NAME)

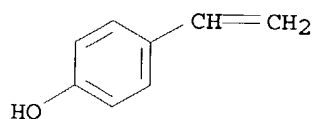
CM 1

CRN 157057-20-0
 CMF C12 H16 O2



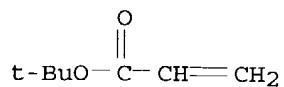
CM 2

CRN 2628-17-3
 CMF C8 H8 O



CM 3

CRN 1663-39-4
 CMF C7 H12 O2



IC ICM G03F007-039
 ICS C08F212-02; G03F007-004; G03F007-033; H01L021-027

KOROMA EIC1700

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38

ST actinic ray radiation sensitive pos **resist** fluoropolymer resoln;
 electron beam x ray sensitive pos **resist** resoln

IT **Photoresists**
 (pos. working **resist** composition containing fluoropolymer for high resolution)

IT Fluoropolymers, uses
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (pos. working **resist** composition containing fluoropolymer for high resolution)

IT **Resists**
 (radiation-sensitive; **chemical amplified** pos.
resist composition sensitive to electron beam or x-ray with high resolution)

IT 153698-46-5P, Triphenylsulfonium pentafluorophenylsulfonate 258341-98-9P
 RL: **IMF** (**Industrial manufacture**); TEM (Technical or engineered material use); **PREP** (**Preparation**); USES (Uses)
 (acid generator; **chemical amplified** pos.
resist composition sensitive to electron beam or x-ray with high resolution)

IT 141714-82-1
 RL: TEM (Technical or engineered material use); USES (Uses)
 (acid generator; **chemical amplified** pos.
resist composition sensitive to electron beam or x-ray with high resolution)

IT 345212-25-1P
 RL: **IMF** (**Industrial manufacture**); TEM (Technical or engineered material use); **PREP** (**Preparation**); USES (Uses)
 (alkali-soluble polymer; **chemical amplified** pos.
resist composition sensitive to electron beam or x-ray with high resolution)

IT 321164-59-4 345212-27-3 345212-28-4 345212-30-8 345212-54-6
 345212-55-7 345212-56-8 345212-60-4 345212-61-5 345212-63-7
 345212-64-8 345212-67-1 345212-69-3 345212-71-7 345212-73-9
 345212-74-0 345212-75-1 345212-77-3 345212-78-4 345212-80-8
 345212-82-0 345212-85-3 345212-86-4 345212-87-5 345212-89-7
 345212-91-1 345212-92-2 345212-93-3 345212-95-5 345212-97-7
 345212-99-9 425422-26-0 425422-30-6 425422-38-4 425422-40-8
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 436812-31-6 436812-32-7 436812-33-8 436812-34-9 436812-35-0
 436812-36-1 436812-37-2 436812-38-3 436812-39-4 436812-40-7
 436812-41-8 436812-42-9 436812-43-0
 RL: TEM (Technical or engineered material use); USES (Uses)
 (alkali-soluble polymer; **chemical amplified** pos.
resist composition sensitive to electron beam or x-ray with high resolution)

IT 3744-08-9P, Triphenylsulfonium iodide 270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate
 RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP**

- (Preparation); RACT (Reactant or reagent)
 (chemical amplified pos. resist composition
 sensitive to electron beam or x-ray with high resolution)
- IT 75-59-2, Tetramethylammonium hydroxide 832-53-1,
 Pentafluorobenzenesulfonyl chloride 945-51-7, Diphenyl sulfoxide
 2049-95-8, tert-Amylbenzene 7758-05-6, Potassium iodate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (chemical amplified pos. resist composition
 sensitive to electron beam or x-ray with high resolution)
- IT 153698-63-6P 153698-69-2P 196709-88-3P
 RL: IMF (Industrial manufacture); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (dissoln. inhibitor; pos. working resist composition containing
 fluoropolymer for high resolution)
- IT 24979-70-2P, p-Hydroxystyrene homopolymer 24979-74-6P,
 p-Hydroxystyrene-styrene copolymer 129674-22-2P,
 p-tert-Butoxycarbonyloxystyrene-p-hydroxystyrene copolymer
 159296-87-4P, tert-Butyl acrylate-p-hydroxystyrene
 copolymer 177034-67-2P, p-(1-Ethoxyethoxy)styrene-p-
 hydroxystyrene-styrene copolymer 249562-17-2P, Maleic
 anhydride-2-methyl-2-adamantyl acrylate-norbornene
 copolymer 289706-85-0P, p-Acetoxystyrene-p-(1-
 benzyloxyethoxy)styrene-p-hydroxystyrene copolymer
 325143-38-2P, tert-Butyl acrylate-p-(1-
 ethoxyethoxy)styrene-p-hydroxystyrene copolymer 436812-24-7P,
 p-Acetoxystyrene-p-hydroxystyrene-p-(1-phenethylethoxy)styrene
 copolymer
 RL: IMF (Industrial manufacture); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (pos. working resist composition containing fluoropolymer for high
 resolution)
- IT 79-10-7D, Acrylic acid, fluoroalkyl esters, polymers with (meth)
 acrylates 79-41-4D, Methacrylic acid, fluoroalkyl esters,
 polymers with (meth)acrylates 80-62-6D, Methyl methacrylate,
 polymers with fluoroalkyl (meth)acrylates, 2-hydroxyethyl
 methacrylate, and iso-Bu methacrylate 97-86-9D, polymers with
 fluoroalkyl (meth)acrylates, Me methacrylate, and 2-hydroxyethyl
 methacrylate 101-68-8D, polymers with fluoroalkyl (meth)
 acrylates, isocyanates, and diols 110-63-4D, 1,4-Butanediol,
 polymers with fluoroalkyl (meth)acrylates, isocyanates, and
 diols 142-90-5D, polymers with fluoroalkyl (meth)acrylates and
 2-Propenamide, N-[4-[(2,6-dimethylphenyl)amino]sulfonyl]phenyl]-
 822-06-0D, 1,6-Hexamethylene diisocyanate, polymers with fluoroalkyl
 (meth)acrylates, isocyanates, and diols 868-77-9D,
 2-Hydroxyethyl methacrylate, polymers with fluoroalkyl (meth)
 acrylates, Me methacrylate, and iso-Bu methacrylate 7398-56-3D,
 polymers with fluoroalkyl (meth)acrylates, Me methacrylate, and
 2-hydroxyethyl acrylate 10097-02-6D, polymers with fluoroalkyl
 (meth)acrylates, isocyanates, and diols 26915-72-0D, polymers
 with fluoroalkyl (meth)acrylates and polypropylene glycol
 methacrylate Me ether 31958-47-1D, polymers with fluoroalkyl
 poly[(2-hydroxy-5-methyl-m-phenylene)methylene] derivs. 32171-39-4D,

polymers with fluoroalkyl meth(**acrylates**) 83844-54-6D,
 polymers with fluoroalkyl (meth)**acrylates** and polyethylene
 glycol methacrylate Me ether 84836-10-2D, fluoroalkyl derivs., polymer
 with (meth)**acrylates**, isocyanates, and diols 114654-22-7D,
 polymers with fluoroalkyl (meth)**acrylates** 206281-34-7, Megafac
 F 470 232945-66-3, Megafac F 178K 251098-95-0D, polymers with
 fluoroalkyl (meth)**acrylates** and dodecyl methacrylate
 299190-83-3, Megafac F 472 402944-02-9, Megafac F 473 402944-04-1,
 Megafac F 475 402944-08-5, Megafac F 476
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material
 use); USES (Uses)

(pos. working **resist** composition containing fluoropolymer for high
 resolution)

IT 110-87-2, 3,4-Dihydro-2H-pyran 5292-43-3, tert-Butyl bromoacetate
 76937-83-2, $\alpha,\alpha,\alpha',\alpha',\alpha''$,
 α'' -Hexakis(4-hydroxyphenyl)-1,3,5-triethylbenzene 110726-28-8,
 1-[α -Methyl- α -(4'-hydroxyphenyl)ethyl]-4-[α',α' -
 bis(4'''-(hydroxyphenyl))ethyl]benzene 148452-55-5, 1,3,3,5-Tetrakis-(4-
 hydroxyphenyl)pentane 153698-47-6, Cumyl bromoacetate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (pos. working **resist** composition containing fluoropolymer for high
 resolution)

L26 ANSWER 24 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:407174 CAPLUS

DOCUMENT NUMBER: 136:409030

TITLE: Radiation-sensitive **chemically**
amplified positive **resists** and
 lithography using the same

INVENTOR(S): Nio, Hiroyuki; Tamura, Kazutaka; Senoo, Masahide

PATENT ASSIGNEE(S): Toray Industries, Inc., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002156760	A2	20020531	JP 2000-352488	20001120
PRIORITY APPLN. INFO.:			JP 2000-352488	20001120
AB The resists , showing good sensitivity and high pattern resolution, contain (a) compds. or acrylate polymers (Markush given) having carboxyls which are protected with ≥ 3 -aromatic-ring-bearing acid-leaving protective groups and (b) radiation-sensitive acid generators.				
IT 383908-14-3P, p-Hydroxy- α -methylstyrene-trityl α -chloroacrylate copolymer				
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)				

(chemical amplified pos. resists containing
polymers bearing acid-leaving bulky protective groups for electron beam
lithog.)

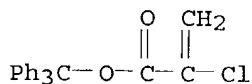
RN 383908-14-3 CAPLUS

CN 2-Propenoic acid, 2-chloro-, triphenylmethyl ester, polymer with
4-(1-methylethenyl)phenol (9CI) (CA INDEX NAME)

CM 1

CRN 383908-13-2

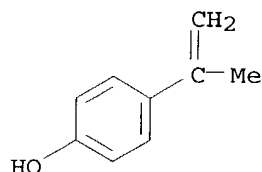
CMF C22 H17 Cl O2



CM 2

CRN 4286-23-1

CMF C9 H10 O



IC ICM G03F007-039

ICS C08K005-00; C08L033-04; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 38, 76

ST electron beam **resist** trityl chloroacrylate polymer; sensitivity
resoln photoresist trityl protected polymer

IT **Photoresists**

(UV, i-line; **chemical amplified pos. resists**
containing polymers bearing acid-leaving bulky protective groups for
electron beam lithog.)

IT Photolithography

(UV; **chemical amplified pos. resists** containing
polymers bearing acid-leaving bulky protective groups for electron beam
lithog.)

IT Electron beam lithography

Electron beam **resists**

(**chemical amplified pos. resists** containing
polymers bearing acid-leaving bulky protective groups for electron beam

lithog.)

IT **Resists**

(radiation-sensitive, pos.; **chemical amplified pos. resists** containing polymers bearing acid-leaving bulky protective groups for electron beam lithog.)

IT 66003-78-9, Triphenylsulfonium triflate

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(acid generators; **chemical amplified pos.**

resists containing polymers bearing acid-leaving bulky protective groups for electron beam lithog.)

IT **383908-14-3P**, p-Hydroxy- α -methylstyrene-trityl

α -chloroacrylate copolymer

RL: **IMF (Industrial manufacture)**; PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); **PREP (Preparation)**; PROC (Process); USES (Uses)

(**chemical amplified pos. resists** containing

polymers bearing acid-leaving bulky protective groups for electron beam lithog.)

IT 383908-19-8 383908-20-1 383908-22-3 431943-52-1

RL: PEP (Physical, engineering or chemical process); PYP (Physical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(**chemical amplified pos. resists** containing

polymers bearing acid-leaving bulky protective groups for electron beam lithog.)

L26 ANSWER 25 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:332604 CAPLUS

DOCUMENT NUMBER: 136:348313

TITLE: **Resist** compositions comprising fluorinated vinyl phenol-**acrylonitrile** resin and patterning process

INVENTOR(S): Hatakeyama, Jun; Harada, Yuji; Watanabe, Jun; Sasago, Masaru; Endo, Masayuki; Kishimura, Shinji

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan; Matsushita Electric Industrial Co., Ltd.

SOURCE: U.S. Pat. Appl. Publ., 21 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

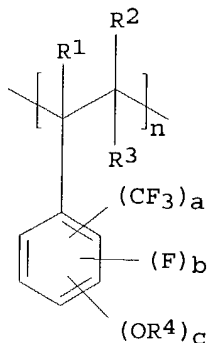
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

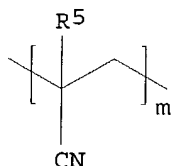
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002051937	A1	20020502	US 2001-947767	20010907
US 6660447	B2	20031209		
JP 2002155115	A2	20020528	JP 2001-266722	20010904
PRIORITY APPLN. INFO.:			JP 2000-271189	A 20000907

GI



I



II

AB Disclosed is a polymer having fluorinated vinyl phenol units **copolymer** with **acrylonitrile** units of the general formula I (R1, R2, R3, R5 = H, F, C1-20-alkyl, C1-20-fluorinated alkyl; R4 = acid labile group; a, b, c are nos. satisfying $0 \leq a < 5$, $0 \leq b < 5$, $0 < a+b < 5$ and $0 < c < 5$; m and n are pos. nos.) that has high transmittance to VUV radiation. A **resist** composition using the polymer of the invention as a base resin has high sensitivity and resolution to high-energy radiation and good plasma etching **resistance** and is suited for lithog. microprocessing.

IT **417702-60-4P**, 2,3-Difluoro-4-tert-butoxy- α -methylstyrene-methacrylonitrile **copolymer** **417702-62-6P**, 2,3-Difluoro-4-tert-butoxy- α -methylstyrene-4-trifluoromethylstyrene-methacrylonitrile **copolymer** **417702-64-8P**, 2,3-Difluoro-4-tert-butoxy- α -methylstyrene-2,3,4,5,6-pentafluorostyrene-methacrylonitrile **copolymer**

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(**resist** compns. comprising fluorinated vinyl phenol-**acrylonitrile** resin and patterning process)

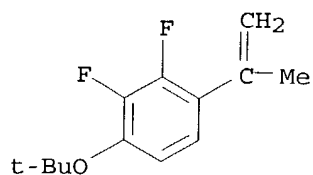
RN 417702-60-4 CAPLUS

CN 2-Propenenitrile, 2-methyl-, polymer with 1-(1,1-dimethylethoxy)-2,3-difluoro-4-(1-methylethenyl)benzene (9CI) (CA INDEX NAME)

CM 1

CRN 343305-42-0

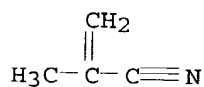
CMF C13 H16 F2 O



CM 2

CRN 126-98-7

CMF C4 H5 N



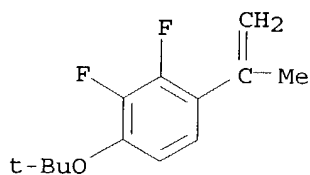
RN 417702-62-6 CAPLUS

CN 2-Propenenitrile, 2-methyl-, polymer with 1-(1,1-dimethylethoxy)-2,3-difluoro-4-(1-methylethenyl)benzene and 1-ethenyl-4-(trifluoromethyl)benzene (9CI) (CA INDEX NAME)

CM 1

CRN 343305-42-0

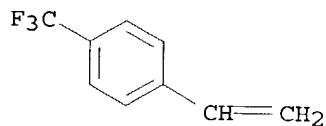
CMF C13 H16 F2 O



CM 2

CRN 402-50-6

CMF C9 H7 F3

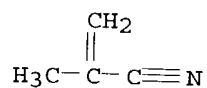


KOROMA EIC1700

CM 3

CRN 126-98-7

CMF C4 H5 N



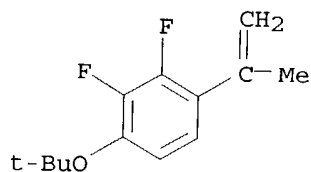
RN 417702-64-8 CAPLUS

CN 2-Propenenitrile, 2-methyl-, polymer with 1-(1,1-dimethylethoxy)-2,3-difluoro-4-(1-methylethenyl)benzene and ethenylpentafluorobenzene (9CI)
(CA INDEX NAME)

CM 1

CRN 343305-42-0

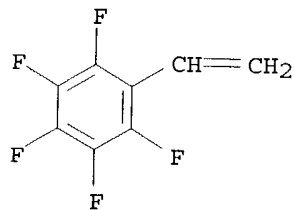
CMF C13 H16 F2 O



CM 2

CRN 653-34-9

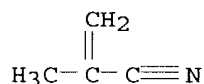
CMF C8 H3 F5



CM 3

CRN 126-98-7

CMF C4 H5 N



IC ICM G03F007-038
ICS G03F007-20; G03F007-30; G03F007-38; G03F007-40
NCL 430270100
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 37, 38
ST fluorinated vinyl phenol **acrylonitrile** polymer pos
resist photoresist UV; **chem amplified**
fluorinated vinyl phenol **acrylonitrile** polymer pos photoresist
IT Photolithography
(UV; **resist** compns. comprising fluorinated vinyl phenol-
acrylonitrile resin and patterning process)
IT Positive **photoresists**
(**chemical amplified**; **resist** compns.
comprising fluorinated vinyl phenol-**acrylonitrile** resin and
patterning process)
IT **Resists**
(**resist** compns. comprising fluorinated vinyl phenol-
acrylonitrile resin and patterning process)
IT 405282-93-1P **417702-60-4P**, 2,3-Difluoro-4-tert-butoxy- α -
methylstyrene-methacrylonitrile **copolymer 417702-62-6P**
, 2,3-Difluoro-4-tert-butoxy- α -methylstyrene-4-
trifluoromethylstyrene-methacrylonitrile **copolymer**
417702-64-8P, 2,3-Difluoro-4-tert-butoxy- α -methylstyrene-
2,3,4,5,6-pentafluorostyrene-methacrylonitrile **copolymer**
RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM
(Technical or engineered material use); **PREP (Preparation)**; USES
(Uses)
(**resist** compns. comprising fluorinated vinyl phenol-
acrylonitrile resin and patterning process)

L26 ANSWER 26 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:265352 CAPLUS
DOCUMENT NUMBER: 136:316916
TITLE: Positive-working **chemically**
amplified photoresist materials containing
polymer made of hydroxyvinylanthracene and monomer
having modified carboxyl group
INVENTOR(S): Hatakeyama, Jun; Watanabe, Osamu; Takeda, Takanobu
PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese

KOROMA EIC1700

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002107934	A2	20020410	JP 2000-293878	20000927
PRIORITY APPLN. INFO.:			JP 2000-293878	20000927

AB The title composition contains a polymer made of hydroxyvinylanthracene and of monomers having carboxyl groups, of which hydroxy hydrogen is substituted with an acid-sensitive group. The photoresist material provides **photoresists** of the fine pattern, the high resolution, and the good dry-etching **resistance**.

IT **409327-73-7P**, 9-Hydroxy-10-Vinylanthracene-tert-butyl **acrylate copolymer 409327-75-9P**, 9-Hydroxy-10-Vinylanthracene-1-ethylcyclopentyl **acrylate copolymer**

RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(polymer in pos.-working **chemical amplified** photoresist materials)

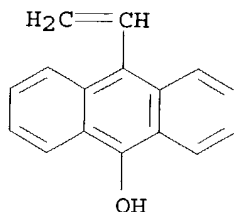
RN 409327-73-7 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 10-ethenyl-9-anthracenol (9CI) (CA INDEX NAME)

CM 1

CRN 409327-72-6

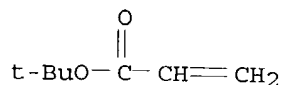
CMF C16 H12 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



RN 409327-75-9 CAPLUS

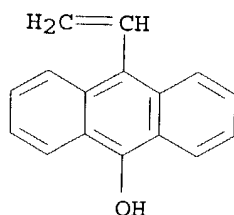
KOROMA EIC1700

CN 2-Propenoic acid, 1-ethylcyclopentyl ester, polymer with
10-ethenyl-9-anthracenol (9CI) (CA INDEX NAME)

CM 1

CRN 409327-72-6

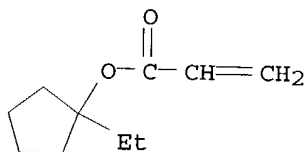
CMF C16 H12 O



CM 2

CRN 326925-69-3

CMF C10 H16 O2



- IC ICM G03F007-039
ICS C08F212-32; C08F220-10; C08F222-10; C08F222-40; C08F232-00;
C08K005-00; C08L101-12; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 35
- ST photoresist polymer hydroxyvinylanthracene carboxyl group
- IT Light-sensitive materials
Positive **photoresists**
(pos.-working **chemical amplified** photoresist materials
containing polymer made of hydroxyvinylanthracene and monomer having
modified carboxyl group)
- IT 109-92-2DP, Ethyl vinyl ether, reaction product with hydroxyaryl polymer
409327-73-7P, 9-Hydroxy-10-Vinylanthracene-tert-butyl
acrylate copolymer 409327-75-9DP, reaction product
with Et vinyl ether **409327-75-9P**, 9-Hydroxy-10-Vinylanthracene-1-
ethylcyclopentyl **acrylate copolymer** 409327-78-2P
409327-80-6P
- RL: **SPN** (Synthetic preparation); TEM (Technical or engineered
material use); **PREP** (Preparation); **USES** (Uses)

(polymer in pos.-working **chemical amplified**
photoresist materials)

L26 ANSWER 27 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2002:265351 CAPLUS
 DOCUMENT NUMBER: 136:316915
 TITLE: Positive-working **chemically amplified** photoresist materials containing polymer made of hydroxyvinyl naphthalene and of monomers having modified carboxyl group
 INVENTOR(S): Hatakeyama, Jun; Watanabe, Osamu; Takeda, Takanobu
 PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 28 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002107933	A2	20020410	JP 2000-293749	20000927
PRIORITY APPLN. INFO.:			JP 2000-293749	20000927

AB The title composition contains a polymer made of hydroxyvinyl naphthalene and monomers having carboxyl group, of which hydroxy hydrogen is substituted with an acid-sensitive group. The photoresist material provides **photoresists** of the fine pattern, the high resolution, and the good dry-etching **resistance**.

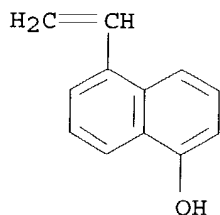
IT **409323-06-4P**, 1-Hydroxy-5-vinyl naphthalene/tert-butyl acrylate copolymer
 RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
 (polymer in pos.-working **chemical amplified** photoresist materials)

RN 409323-06-4 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 5-ethenyl-1-naphthalenol (9CI) (CA INDEX NAME)

CM 1

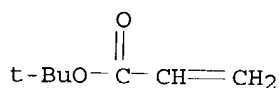
CRN 345212-58-0
 CMF C12 H10 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



IC ICM G03F007-039

ICS C08F212-14; C08F220-30; C08F222-40; C08F232-00; C08K005-00;
C08L025-18; C08L033-14; C08L035-06; C08L045-00; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 35

ST photoresist polymer hydroxyvinyl naphthalene carboxyl group

IT Light-sensitive materials

Positive **photoresists**

(pos.-working **chemical amplified** photoresist materials
containing polymer made of hydroxyvinyl naphthalene and monomer having
modified carboxyl group)

IT **409323-06-4P**, 1-Hydroxy-5-vinyl naphthalene/tert-butyl
acrylate copolymer 409323-08-6P 409323-10-0P
409323-12-2P

RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered
material use); **PREP (Preparation)**; USES (Uses)
(polymer in pos.-working **chemical amplified**
photoresist materials)

L26 ANSWER 28 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:251871 CAPLUS

DOCUMENT NUMBER: 136:270596

TITLE: Blends of hydroxystyrene polymers for use in
chemically amplified positive
resist formulations

INVENTOR(S): Chen, Kuang-Jung; DellaGuardia, Ronald Anthony; Ito,
Hiroshi; Jordhamo, George Michael; Katnani, Ahmad
Dauod

PATENT ASSIGNEE(S): International Business Machines Corporation, USA
SOURCE: U.S., 12 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 6365321 B1 20020402 US 1999-291389 19990413
 PRIORITY APPLN. INFO.: US 1999-291389 19990413

AB A photoresist binder composition comprises a homogeneous blend of (A) a hydroxystyrene **copolymer** comprising a first monomer that is optionally substituted hydroxystyrene and a second monomer containing an acid labile group, preferably pendant to the polymer backbone, and (B) and a phenolic polymer, that is optionally partially or wholly protected, such as polyhydroxystyrene, poly(hydroxystyrene-co-styrene), poly(hydroxystyrene-co-styrene-co-t-Bu **acrylate**), novolac, and the like. Also provided is a lithog. **resist** composition comprising the homogeneous blend of the photoresist binder composition, and a radiation-sensitive acid generator which generates an acid upon exposure to radiation, and a process for using the **resist** composition to generate **resist** images on a substrate, such as in the manufacture of integrated circuits or the like.

IT 174476-25-6DP, p-Acetoxystyrene-tert-butyl **acrylate** **copolymer**, hydrolyzed

RL: POF (Polymer in formulation); SPN (Synthetic preparation);
 TEM (Technical or engineered material use); PREP (Preparation);
 USES (Uses)

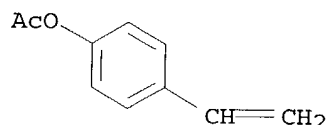
(blend with hydroxystyrene-styrene **copolymer**; blends of hydroxystyrene polymers for use in **chemical amplified** pos. **resist** formulations in relation to)

RN 174476-25-6 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

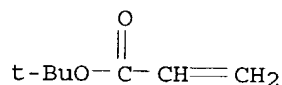
CM 1

CRN 2628-16-2
 CMF C10 H10 O2



CM 2

CRN 1663-39-4
 CMF C7 H12 O2



IT 174476-25-6P, p-Acetoxystyrene-tert-butyl **acrylate**

copolymer

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations in relation to)

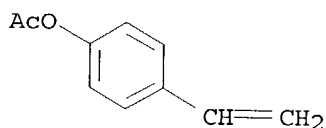
RN 174476-25-6 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 2628-16-2

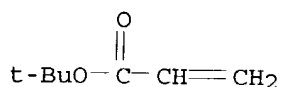
CMF C10 H10 O2



CM 2

CRN 1663-39-4

CMF C7 H12 O2



IC ICM G03F007-004

NCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38, 76

ST **chem amplified** photoresist binder hydroxystyrene blend photolithog integrated circuit

IT Phenolic resins, uses

RL: POF (Polymer in formulation); USES (Uses)

(blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations)

IT Polymer blends

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)

(blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations)

IT Photolithography

(blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations for)

- IT Integrated circuits
(blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations in relation to)
- IT Positive photoresists
(**chemical amplified**; blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations)
- IT 24979-74-6, p-Hydroxystyrene-styrene **copolymer**
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(blend with hydrolyzed acetoxystyrene-tert-Bu **acrylate copolymer**; blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations in relation to)
- IT 174476-25-6DP, p-Acetoxystyrene-tert-butyl **acrylate copolymer**, hydrolyzed
RL: POF (Polymer in formulation); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(blend with hydroxystyrene-styrene **copolymer**; blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations in relation to)
- IT 174476-25-6P, p-Acetoxystyrene-tert-butyl **acrylate copolymer**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations in relation to)
- IT 45187-15-3, Perfluorobutanesulfonate 194861-06-8, Di-(tert-butylphenyl)iodonium camphorsulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoacid generator; blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations)
- IT 97-64-3, Ethyl lactate 763-69-9, Ethyl 3-ethoxypropionate
RL: TEM (Technical or engineered material use); USES (Uses)
(solvent; blends of hydroxystyrene polymers for use in **chemical amplified pos. resist** formulations)
- REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 29 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:185460 CAPLUS
DOCUMENT NUMBER: 136:254547
TITLE: Novel polymers and photoresist compositions comprising electronegative groups
INVENTOR(S): Zampini, Anthony; Szmanda, Charles R.; Cho, Sungseo; Taylor, Gary N.
PATENT ASSIGNEE(S): Shipley Company, L.L.C., USA
SOURCE: PCT Int. Appl., 77 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002021216	A2	20020314	WO 2001-US28018	20010908
WO 2002021216	A3	20021003		
WO 2002021216	C2	20030403		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2001088865	A5	20020322	AU 2001-88865	20010908
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US 2002058198	A1	20020516	US 2001-948521	20010908
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US 2002058199	A1	20020516	US 2001-948903	20010908
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PRIORITY APPLN. INFO.:

US 2000-231274P	P	20000908
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US 2000-253118P	P	20001127
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WO 2001-US28018	W	20010908
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AB The present invention includes polymers and photoresist compns. that comprise the polymers as a resin binder component. **Photoresists** of the invention include **chemical-amplified pos.-acting resists** that can be effectively imaged at short wavelengths such as sub-200 nm, particularly 157 nm. Particular polymers and **photoresists** of the invention include at least one electroneg. group that reduces 157 nm absorbance of a wide spectrum of organic groups including aromatic groups such as phenolic moieties.

IT **403814-71-1P**, 4-Hydroxy-2,3,5,6-tetrafluorostyrene-isobornyl methacrylate **copolymer 403814-72-2P**, tert-Butylmethacrylate-4-Hydroxy-2,3,5,6-tetrafluorostyrene-pentafluorostyrene **copolymer**

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(novel polymers and photoresist compns. comprising electroneg. groups)

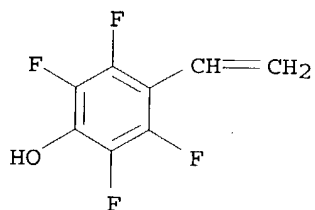
RN 403814-71-1 CAPLUS

CN 2-Propenoic acid, 2-methyl-, (1R,2R,4R)-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester, rel-, polymer with 4-ethenyl-2,3,5,6-tetrafluorophenol (9CI) (CA INDEX NAME)

CM 1

CRN 385422-30-0

CMF C8 H4 F4 O

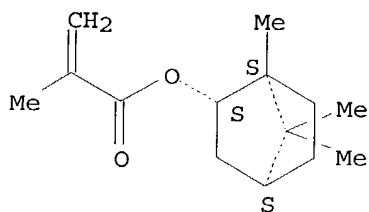


CM 2

CRN 7534-94-3

CMF C14 H22 O2

Relative stereochemistry.



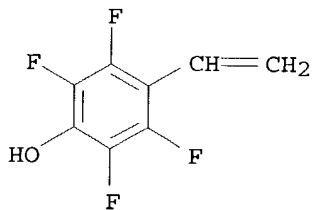
RN 403814-72-2 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with ethenylpentafluorobenzene and 4-ethenyl-2,3,5,6-tetrafluorophenol (9CI)
(CA INDEX NAME)

CM 1

CRN 385422-30-0

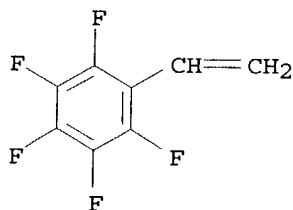
CMF C8 H4 F4 O



CM 2

CRN 653-34-9

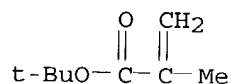
CMF C8 H3 F5



CM 3

CRN 585-07-9

CMF C8 H14 O2



IT 403852-88-0P, 4-Acetoxystyrene-tert-butyl acrylate
-trifluoromethyl styrene copolymer

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(novel polymers and photoresist compns. comprising electroneg. groups)

RN 403852-88-0 CAPLUS

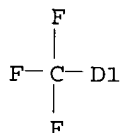
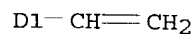
CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenyl acetate and ethenyl(trifluoromethyl)benzene (9CI) (CA INDEX NAME)

CM 1

CRN 87176-42-9

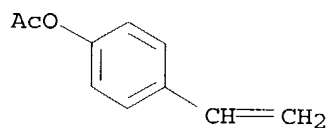
CMF C9 H7 F3

CCI IDS



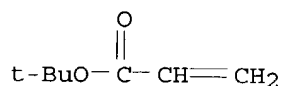
CM 2

CRN 2628-16-2
CMF C10 H10 O2



CM 3

CRN 1663-39-4
CMF C7 H12 O2



IC ICM G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
ST photoresist compn electroneg group polymer resin
IT **Photoresists**
(novel polymers and photoresist compns. comprising electroneg. groups)
IT Phenolic resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(novolak, trifluoromethyl substituted, reaction product with Et vinyl

KOROMA EIC1700

ether; novel polymers and photoresist compns. comprising electroneg. groups)

- IT 26838-55-1P, Poly(Pentafluorostyrene) 403814-65-3P 403814-66-4P
403814-67-5P, 4-tert-Butoxy-2,3,5,6-tetrafluorostyrene-4-Hydroxy-2,3,5,6-
tetrafluorostyrene **copolymer** 403814-68-6P 403814-69-7P
403814-70-0P **403814-71-1P**, 4-Hydroxy-2,3,5,6-tetrafluorostyrene-
isobornyl methacrylate **copolymer** **403814-72-2P**,
tert-Butylmethacrylate-4-Hydroxy-2,3,5,6-tetrafluorostyrene-
pentafluorostyrene **copolymer** 403814-73-3P 403814-74-4P
403814-75-5P 403814-76-6P 403814-77-7P

RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM
(Technical or engineered material use); **PREP (Preparation)**; USES
(Uses)

(novel polymers and photoresist compns. comprising electroneg. groups)

- IT 109-92-2DP, Ethyl vinyl ether, reaction with trifluoromethyl substituted
novolak 3188-13-4DP, Chloromethyl ethyl ether, reaction product with
Formalin-trifluoro-m-cresol **copolymer** 24424-99-5DP,
Di-tert-butyl dicarbonate, polymer with trifluoromethyl novolak
25512-65-6DP, Dihydropyran, reaction product with formalin-trifluoro-m-
cresol **copolymer** 37604-40-3P 37702-76-4DP, reaction product
with dihydropyranyl 37702-76-4P, Formaldehyde-trifluoro-m-cresol
copolymer 403852-88-0DP, reaction product with di-Bu dicarbonate
403852-88-0P, 4-Acetoxystyrene-tert-butyl **acrylate**
-trifluoromethyl styrene **copolymer**

RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered
material use); **PREP (Preparation)**; USES (Uses)

(novel polymers and photoresist compns. comprising electroneg. groups)

- IT 356058-56-5

RL: TEM (Technical or engineered material use); USES (Uses)

(photoacid; novel polymers and photoresist compns. comprising
electroneg. groups)

- IT 653-34-9 1310-58-3, Potassium hydroxide, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of novel polymers and photoresist compns. comprising
electroneg. groups)

- IT 343305-41-9P 385422-30-0P

RL: RCT (Reactant); **SPN (Synthetic preparation)**; **PREP**
(**Preparation**); RACT (Reactant or reagent)

(preparation of novel polymers and photoresist compns. comprising
electroneg. groups)

L26 ANSWER 30 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:153055 CAPLUS

DOCUMENT NUMBER: 136:207687

TITLE: **Chemically amplified**

positive-working photoresist composition for
fabrication of semiconductor devices such as super LSI
INVENTOR(S): Takeda, Takanobu; Watanabe, Osamu; Hirahara, Kazuhiro;
Maeda, Kazunori; Kusaki, Wataru; Nagura, Shigehiro

PATENT ASSIGNEE(S): Shin-Etsu Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002062652	A2	20020228	JP 2000-245617	20000814
US 2002039701	A1	20020404	US 2001-928455	20010814
US 6641975	B2	20031104		

PRIORITY APPLN. INFO.: JP 2000-245617 A 20000814

AB The title composition contains a **copolymer** as a base resin, wherein the **copolymer** is made of hydroxystyrene, tertalkyl (meth) **acrylate**, and phenoxyalkyl (meth) **acrylate**. The composition, which contain the **copolymer**, provides the **resist** of the high sensitivity and the high resolution, and the good etching **resistance**.

IT **401606-84-6P**, Acetoxystyrene-Phenoxyethyl methacrylate-2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester **copolymer**

RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(**copolymer in chemical amplified**
 pos.-working photoresist composition)

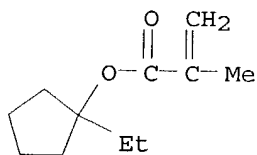
RN 401606-84-6 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with ethenylphenyl acetate and 2-phenoxyethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1

CMF C11 H18 O2



CM 2

CRN 59858-52-5

CMF C10 H10 O2

CCI IDS



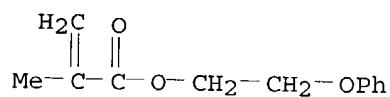
D1-CH=CH₂

D1-O-Ac

CM 3

CRN 10595-06-9

CMF C12 H14 O3



IC ICM G03F007-039
ICS C08F012-14; C08F020-12; C08F020-30; C08K005-00; C08L033-04;
G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 35, 76

ST amplified pos working photoresist compn

IT Light-sensitive materials
Positive **photoresists**
Semiconductor device fabrication
(**chemical amplified pos.-working photoresist composition**
for fabrication of semiconductor devices such as super LSI)

IT **401606-84-6P**, Acetoxystyrene-Phenoxyethyl methacrylate-2-Propenoic
acid, 2-methyl-, 1-ethylcyclopentyl ester **copolymer**
RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered
material use); **PREP (Preparation)**; USES (Uses)
(**copolymer in chemical amplified**
pos.-working photoresist composition)

L26 ANSWER 31 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:63922 CAPLUS

DOCUMENT NUMBER: 136:126551

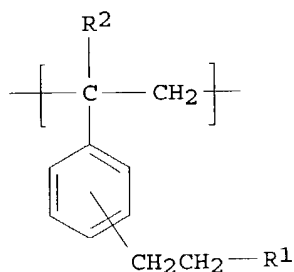
TITLE: Styrene polymer having acid-sensitive dissociable
organic groups for radiation-sensitive
chemically amplified resist
resin composition

INVENTOR(S): Nishimura, Yukio; Wang, Yung; Kobayashi, Eiichi;

KOROMA EIC1700

Shiotani, Takeo; Shimokawa, Tsutomu
 PATENT ASSIGNEE(S): Jsr Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 26 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002023370	A2	20020123	JP 2000-204082	20000705
PRIORITY APPLN. INFO.: GI			JP 2000-204082	20000705



AB The title styrene polymer has repeating unit I (R1 = C_≤20 acid-sensitive dissociable group; R2 = H, methyl) and has 1,000-500,000 weight average mol. weight as styrene according to GPC. The resin provides the **resist** of the good pattern profile and the high sensitivity.

IT 391671-27-5D, tert-Butyl 3-(vinylphenyl)propionate-1-Acryloyloxy-3-hydroxyadamantane-p-Acetoxystyrene copolymer, hydrolyzed

RL: RCT (Reactant); RACT (Reactant or reagent)
 (styrene polymer having acid-sensitive dissociable organic groups for light-sensitive **resist** resin composition)

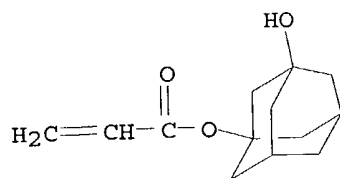
RN 391671-27-5 CAPLUS

CN Benzenepropanoic acid, ar-ethenyl-, 1,1-dimethylethyl ester, polymer with 4-ethenylphenyl acetate and 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 216581-76-9

CMF C13 H18 O3



CM 2

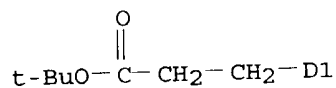
CRN 55986-15-7

CMF C15 H20 O2

CCI IDS



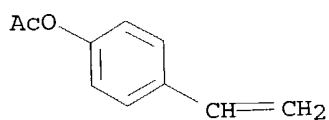
D1-CH=CH2



CM 3

CRN 2628-16-2

CMF C10 H10 O2



IC ICM G03F007-039
ICS C08F012-22; C08K005-00; C08L025-18; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 35
ST styrene polymer dissociable org radiation amplified **resist** resin
compn
IT Light-sensitive materials
Photoresists

KOROMA EIC1700

(styrene polymer having acid-sensitive dissociable organic groups for light-sensitive **resist** resin composition)

IT 110-87-2, 3,4-Dihydro-2H-pyran 1592-20-7, p-(Chloromethyl)styrene 5292-43-3, tert-Butyl bromoacetate **391671-27-5D**, tert-Butyl 3-(vinylphenyl)propionate-1-**Acryloyloxy**-3-hydroxyadamantane-p-Acetoxy styrene **copolymer**, hydrolyzed 391671-29-7D, tert-Butyl 3-(vinylphenyl)propionate-1-**Acryloyloxy**-3-hydroxyadamantane-3-(4-Vinylphenyl)propionic acid **copolymer**, hydrolyzed 391671-31-1 391671-32-2 391671-33-3 391671-36-6 391671-38-8 391671-40-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(styrene polymer having acid-sensitive dissociable organic groups for light-sensitive **resist** resin composition)

IT 55986-15-7P, tert-Butyl 3-(vinylphenyl)propionate 91142-57-3P, 3-(4-Vinylphenyl)propionic acid

RL: RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)

(styrene polymer having acid-sensitive dissociable organic groups for light-sensitive **resist** resin composition)

L26 ANSWER 32 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:9964 CAPLUS

DOCUMENT NUMBER: 136:77256

TITLE: **Chemical amplifying type positive**

resist composition and sulfonium salt

INVENTOR(S): Uetani, Yasunori; Kamabuchi, Akira; Oohashi, Kenji

PATENT ASSIGNEE(S): Sumitomo Chemical Company, Limited, Japan

SOURCE: Eur. Pat. Appl., 34 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

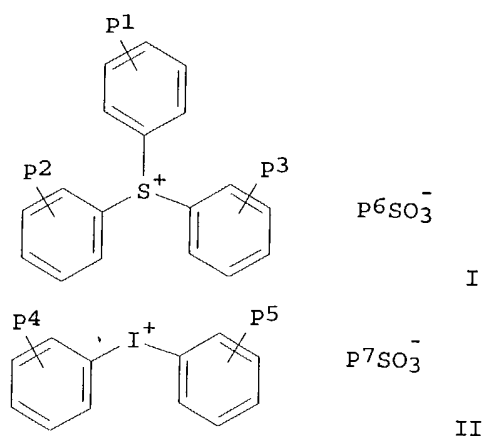
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1167349	A1	20020102	EP 2001-114724	20010621
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002116546	A2	20020419	JP 2001-184546	20010619
CN 1330289	A	20020109	CN 2001-129511	20010622
US 2002015913	A1	20020207	US 2001-886386	20010622
US 6548220	B2	20030415		

PRIORITY APPLN. INFO.: JP 2000-189120 A 20000623

OTHER SOURCE(S): MARPAT 136:77256

GI



AB A chemical amplifying type pos. resist composition provides a resist pattern having an exceedingly improved line edge roughness, and is excellent in various resist performances such as dry etching resistance, sensitivity and resolution; and comprises: (A) an acid generator containing (a) a sulfonium salt $Q1Q2S+CHQ3C(:O)Q4 Q5SO_3^-$ ($Q1,2$ = alkyl, cycloalkyl, or $Q1,2$ together with a sulfur atom to which they are adjacent form an heteroalicyclic group; $Q3$ = H; $Q4$ = alkyl, cycloalkyl, or $Q3,4$ together with a $CHC(:O)$ group to which they are adjacent form a 2-oxocycloalkyl group; and $Q5SO_3^-$ = organosulfonate ion); and (b) at least one onium salt selected from a triphenylsulfonium salt I, and a diphenyliodonium salt II ($P1-5$ = H, hydroxyl group, alkyl, alkoxy; and $P6SO_3^-$ and $P7SO_3^-$ = organosulfonate ion); and (B) a resin which has a polymerization unit having a group instable against an acid, and is alkali-insol. or -slightly soluble itself, but is converted to alkali-soluble by the action of an acid.

IT 341969-10-6DP, p-Acetoxystyrene-2-methyl-2-admantylmethacrylate copolymer, hydrolyzed

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(chemical amplifying type pos. resist composition containing resin)

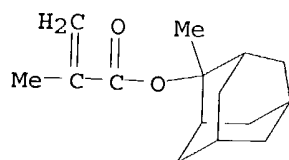
RN 341969-10-6 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 177080-67-0

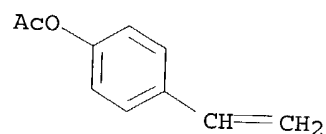
CMF C15 H22 O2



CM 2

CRN 2628-16-2

CMF C10 H10 O2



IT 200808-68-0, tert-Butyl acrylate-4-hydroxystyrene-styrene copolymer

RL: TEM (Technical or engineered material use); USES (Uses)
(chemical amplifying type pos. resist composition containing resin)

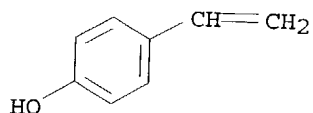
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

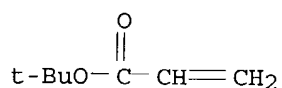
CMF C8 H8 O



CM 2

CRN 1663-39-4

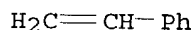
CMF C7 H12 O2



CM 3

CRN 100-42-5

CMF C8 H8



- IC ICM C07C381-00
ICS C07D333-46; G03F007-004; G03F007-039
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
- ST **chem amplifying** photoresist compn sulfonium salt
- IT **Photoresists**
(**Chemical amplifying** type pos. **resist** composition and sulfonium salt for)
- IT 177034-80-9 185195-30-6, Di(4-tert-butylphenyl) iodonium camphor sulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(**chemical amplifying** type pos. **resist** composition containing acid generator)
- IT 24544-04-5, 2,6-Diisopropylaniline
RL: TEM (Technical or engineered material use); USES (Uses)
(**chemical amplifying** type pos. **resist** composition containing acid quencher)
- IT 341969-10-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**chemical amplifying** type pos. **resist** composition containing resin)
- IT 258879-89-9P 299416-56-1P **341969-10-6DP**, p-Acetoxy styrene-2-methyl-2-admantylmethacrylate **copolymer**, hydrolyzed
351867-98-6P, 1-(1-Adamantyl)-1-methylethylacrylate-3-hydroxy-1-adamantylacrylate-maleic acid anhydride-2-norbornene **copolymer**
364736-22-1P, 2-Ethyl-2-adamantyl methacrylate-5-methacryloyloxy-2,6-norbornanelactone- α -methacryloyloxy- γ -butyrolactone **copolymer**
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**chemical amplifying** type pos. **resist** composition containing resin)
- IT **200808-68-0**, tert-Butyl **acrylate**-4-hydroxystyrene-styrene **copolymer**

RL: TEM (Technical or engineered material use); USES (Uses)
 (chemical amplifying type pos. resist composition
 containing resin)

IT 110-01-0, Tetrahydrothiophene 2795-39-3, Potassium
 perfluorooctanesulfonate 2926-27-4, Potassium trifluoromethanesulfonate
 5469-26-1, 1-Bromopinacolone 16836-95-6, Silver p-Toluenesulfonate
 20520-61-0 29420-49-3, Potassium perfluorobutanesulfonate

RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of acid generator for chemical amplifying type
 pos. resist composition)

IT 303177-16-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (preparation of acid generator for chemical amplifying type
 pos. resist composition)

IT 347193-29-7P 383367-32-6P

RL: SPN (Synthetic preparation); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (preparation of acid generator for chemical amplifying type
 pos. resist composition)

IT 347193-28-6P 383367-33-7P 383367-34-8P

RL: SPN (Synthetic preparation); TEM (Technical or engineered
 material use); PREP (Preparation); USES (Uses)
 (sulfonium salt as acid generator for chemical
 amplifying type pos. resist composition)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 33 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:867995 CAPLUS

DOCUMENT NUMBER: 136:12842

TITLE: Positive resist composition and onium salts
 of saccharin derivatives

INVENTOR(S): Kodama, Kunihiko; Kanna, Shinichi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 73 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1158363	A1	20011128	EP 2001-111990	20010522
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001330947	A2	20011130	JP 2000-150217	20000522
US 2002006578	A1	20020117	US 2001-860440	20010521
US 6605409	B2	20030812		

PRIORITY APPLN. INFO.: JP 2000-150217 A 20000522

OTHER SOURCE(S): MARPAT 136:12842

KOROMA EIC1700

AB A pos. **resist** composition comprises: (A) a compound generating a specific sulfonimide compound: $R'S(:O)(:O)NHYR''$ (Y = single bond, CO, SO₂; R', R'' = alkyl, aryl, aralkyl, camphor group; R' and R'' may be bonded to each other to form an alkylene, arylene, aralkylene group) by irradiation with an actinic ray or a radiation; and (B) a resin having a group, which is decomposed by the action of an acid to increase the solubility of the

composition in

an alkali developer. The **resist** composition has an improved resolving power and an improved process allowance such as exposure margin and the depth of focus in a lithog. technique using a light source of short wavelengths capable of super fine working and a pos. **chemical amplified resist**.

IT 159296-87-4DP, tert-Butyl **acrylate**-p-hydroxystyrene copolymer, isobutyoxyether ether 159296-87-4P, tert-Butyl **acrylate**-p-hydroxystyrene copolymer 200808-68-0P, tert-Butyl **acrylate**-p-hydroxystyrene-styrene copolymer

RL: **SPN** (Synthetic preparation); TEM (Technical or engineered material use); **PREP** (Preparation); **USES** (Uses)
(polymer resin for pos. **resist** composition)

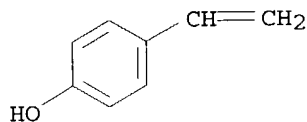
RN 159296-87-4 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

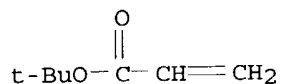
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CM 2

CRN 1663-39-4

CMF C7 H12 O2



RN 159296-87-4 CAPLUS

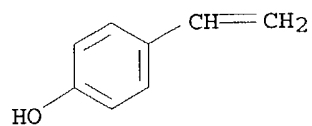
CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

KOROMA EIC1700

CM 1

CRN 2628-17-3

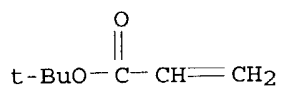
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CM 2

CRN 1663-39-4

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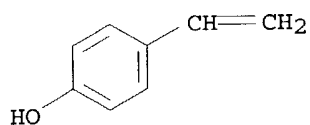
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

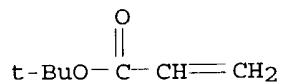
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CRN 1663-39-4

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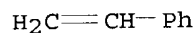


KOROMA EIC1700

CM 3

CRN 100-42-5

CMF C8 H8



- IC ICM G03F007-004
ICS G03F007-039; C07C381-12; C07D275-06
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
- ST photoresist sulfonimide compd onium salt saccharin deriv
- IT Positive **photoresists**
(sulfonimide compd and saccharin derivs. for)
- IT Surfactants
(sulfonimide compd and saccharin derivs. for pos. **resist** composition)
- IT Polysiloxanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(surfactant; pos. **resist** composition containing)
- IT 14159-45-6 39153-56-5 66003-78-9 84563-54-2 138529-81-4
193345-23-2 197447-16-8 247589-67-9 258341-98-9 297742-41-7
RL: TEM (Technical or engineered material use); USES (Uses)
(photo-acid generator for pos. **resist** composition)
- IT 60-12-8DP, Phenethanol, reaction products with poly(hydroxystyrene) and tert-Bu vinyl ether, acetate 64-17-5DP, Ethanol, reaction products with poly(hydroxystyrene) and tert-Bu vinyl ether 78-83-1DP, Isobutanol, reaction products with poly(hydroxystyrene) and tert-Bu vinyl ether 100-51-6DP, Benzyl alcohol, reaction products with poly(hydroxystyrene) and tert-Bu vinyl ether, acetate 108-24-7DP, Acetic anhydride, ester with poly(hydroxystyrene) alkoxyethyl ether derivs. 109-53-5DP, Isobutyl vinyl ether, oxyethylidene ether with Bu **acrylate**-hydroxystyrene **copolymer** 926-02-3DP, tert-Butyl vinyl ether, reaction products with poly(hydroxystyrene) and cyclohexylehtanol 4442-79-9DP, 2-Cyclohexylehtanol, reaction products with poly(hydroxystyrene) and tert-Bu vinyl ether 24979-70-2DP, VP8000, substituted 1-alkoxyethyl ethers, acetate 147625-42-1P, 4-Hydroxystyrene homopolymer tert-butyl carbonate 159296-87-4DP, tert-Butyl **acrylate** -p-hydroxystyrene **copolymer**, isobutyoxyether ether 159296-87-4P, tert-Butyl **acrylate**-p-hydroxystyrene **copolymer** 200808-68-0P, tert-Butyl **acrylate** -p-hydroxystyrene-styrene **copolymer** 376359-28-3DP, reaction products with poly(hydroxystyrene) and tert-Bu vinyl ether, acetate 376359-32-9DP, 4-tert-Butylstyrene-4-hydroxystyrene **copolymer**, reaction products with cyclohexylehtanol and tert-Bu vinyl ether
RL: SPN (**Synthetic preparation**); TEM (Technical or engineered material use); PREP (**Preparation**); USES (Uses)
(polymer resin for pos. **resist** composition)

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IT 153698-63-6
 RL: TEM (Technical or engineered material use); USES (Uses)
 (pos. **resist** composition containing)

IT 376357-65-2P 376357-70-9P 376357-77-6P 376357-83-4P 376357-88-9P
 376357-89-0P 376357-95-8P 376358-03-1P 376358-13-3P 376358-18-8P
 RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered
 material use); **PREP (Preparation)**; USES (Uses)
 (pos. **resist** composition containing saccharin derivs. as photo-acid
 generator)

IT 376358-25-7 376358-32-6 376358-38-2 376358-44-0 376358-50-8
 376358-58-6 376358-65-5 376358-72-4 376358-78-0
 RL: TEM (Technical or engineered material use); USES (Uses)
 (pos. **resist** composition containing saccharin derivs. as photo-acid
 generator)

IT 81-07-2, Saccharin 2217-79-0, Diphenyliodonium iodide 3744-08-9,
 Triphenylsulfonium iodide 3744-09-0 111329-06-7 203927-87-1
 365971-60-4 376357-62-9 376357-74-3 376357-81-2 376357-86-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of saccharin derivs. for pos. **resist** composition)

IT 137462-24-9, Megafac F176 216679-67-3, Megafac R08
 RL: TEM (Technical or engineered material use); USES (Uses)
 (surfactant; pos. **resist** composition containing)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 34 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:817219 CAPLUS

DOCUMENT NUMBER: 135:350570

TITLE: **Chemically amplified positive
 resist** compositions with improved resolution,
 pattern profile and focal latitude for deep UV
 lithography

INVENTOR(S): Ohsawa, Youichi; Watanabe, Jun; Takeda, Takanobu;
 Seki, Akihiro

PATENT ASSIGNEE(S): Shin-Etsu Chemical Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 33 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2001038971	A1	20011108	US 2001-799052	20010306
US 6682869	B2	20040127		
JP 2001324813	A2	20011122	JP 2001-57719	20010302
PRIORITY APPLN. INFO.:			JP 2000-61350	A 20000307

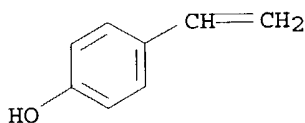
AB A **chemical amplified**, pos. **resist** composition is
 provided comprising (A) a photoacid generator and (B) a resin which
 changes its solubility in an alkali developer under the action of acid and has
 substituents of the formula: Ph-(CH₂)_nNOCH(CH₂CH₃)- (n = 0,1). The composition

has many advantages including improved focal latitude, improved resolution, minimized line width variation or shape degradation even on long-term PED, minimized defect left after coating, development and stripping, and improved pattern profile after development and is suited for microfabrication by any lithog., especially deep UV lithog.

IT 159296-87-4D, tert-Butyl **acrylate**-p-hydroxystyrene copolymer, 1-benzyloxypropyl derivs. 200808-68-0D, tert-Butyl **acrylate**-p-hydroxystyrene-styrene copolymer, 1-benzyloxypropyl derivs. 326925-68-2, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer 326925-68-2D, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer, 1-benzyloxypropyl derivs. 362478-99-7D, 1,4-Butanediol divinyl ether-p-hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer, 1-benzyloxypropyl derivs.
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (chemical amplified pos. resist compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)
 RN 159296-87-4 CAPLUS
 CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

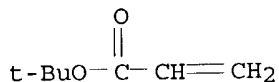
CM 1

CRN 2628-17-3
 CMF C8 H8 O



CM 2

CRN 1663-39-4
 CMF C7 H12 O2



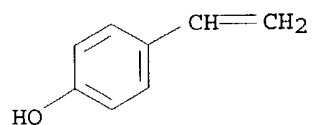
RN 200808-68-0 CAPLUS
 CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

KOROMA EIC1700

CRN 2628-17-3

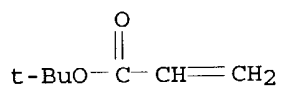
CMF C8 H8 O



CM 2

CRN 1663-39-4

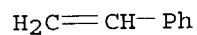
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CM 3

CRN 100-42-5

CMF C8 H8



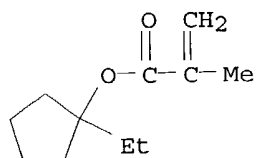
RN 326925-68-2 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1

CMF C11 H18 O2

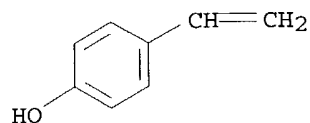


CM 2

KOROMA EIC1700

CRN 2628-17-3

CMF C8 H8 O



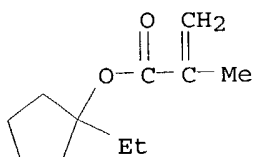
RN 326925-68-2 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1

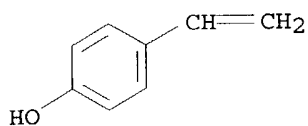
CMF C11 H18 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



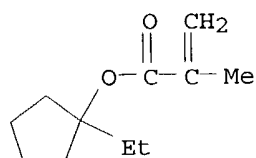
RN 362478-99-7 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
1,4-bis(ethenyloxy)butane and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1

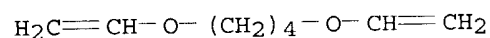
CMF C11 H18 O2



CM 2

CRN 3891-33-6

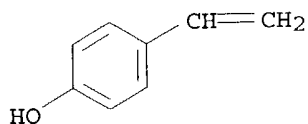
CMF C8 H14 O2



CM 3

CRN 2628-17-3

CMF C8 H8 O



IC ICM G03F007-004

NCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST **chem amplified** pos photoresist compn UV lithog;

resist chem amplified pos compn UV photolithog

IT Photolithography

Positive **photoresists**

(UV; **chemical amplified** pos. **resist** compns.

with improved resolution, pattern profile and focal latitude for deep UV lithog.)

IT 24979-70-2DP, Poly(p-hydroxystyrene), 1-benzyloxypropyl, 1-phenethyloxypropyl, 1-ethoxyethyl and tert-butoxycarbonyl derivs.

RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP** (**Preparation**); PROC (Process); USES (Uses)

(**chemical amplified** pos. **resist** compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)

IT **159296-87-4D**, tert-Butyl **acrylate**-p-hydroxystyrene **copolymer**, 1-benzyloxypropyl derivs. **200808-68-0D**,

KOROMA EIC1700

tert-Butyl acrylate-p-hydroxystyrene-styrene copolymer
 , 1-benzyloxypropyl derivs. 326925-68-2, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer 326925-68-2D,
 p-Hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer,
 1-benzyloxypropyl derivs. 362478-99-7D, 1,4-Butanediol divinyl
 ether-p-hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer
 , 1-benzyloxypropyl derivs. 362479-00-3D, 1,4-Butane diol divinyl
 ether-p-hydroxystyrene copolymer, 1-phenethyloxypropyl derivs.
 369385-37-5D, p-Hydroxystyrene-1,2-Bis(vinyloxy)propane copolymer
 , 1-benzyloxypropyl and 1-ethoxypropyl derivs.

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(chemical amplified pos. resist compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)

IT 15895-87-1P, Benzyl propenyl ether

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in preparation of base resin for chemical amplified pos. resist compns.)

IT 100-51-6, Benzyl alcohol, reactions 106-95-6, Allyl bromide, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(in preparation of base resin for chemical amplified pos. resist compns.)

IT 14593-43-2P, Allyl benzyl ether

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(in preparation of base resin for chemical amplified pos. resist compns.)

IT 13891-29-7, Triphenylsulfonium p-toluenesulfonate 39153-56-5, Bis(2,4-dimethylphenylsulfonyl)diazomethane 83697-56-7 138529-81-4, Bis(cyclohexylsulfonyl)diazomethane 138529-84-7, Bis(tert-butylsulfonyl)diazomethane 258872-08-1, Tris(4-butoxyphenyl)sulfonium nonafluorobutane-sulfonate 326925-52-4 369385-38-6 369385-39-7

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(photoacid generator; chemical amplified pos. resist compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)

IT 369385-35-3DP, p-tert-Butoxystyrene-p-(chloromethyl)styrene copolymer, hydrolyzed, 1-benzyloxypropyl and tert-butoxycarbonyl derivs.

RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(tri-, nona-branched; chemical amplified pos. resist compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)

L26 ANSWER 35 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2001:781404 CAPLUS
 DOCUMENT NUMBER: 135:336907

TITLE: **Chemically amplified positive resist** compositions with improved resolution, pattern profile and focal latitude for deep UV lithography

INVENTOR(S): Ohsawa, Youichi; Watanabe, Jun; Takeda, Takanobu; Seki, Akihiro

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 34 pp.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2001033994	A1	20011025	US 2001-799009	20010306
JP 2001324812	A2	20011122	JP 2001-57716	20010302

PRIORITY APPLN. INFO.: JP 2000-61357 A 20000307

AB A **chemical amplified**, pos. **resist** composition is provided comprising (A) a photoacid generator and (B) a resin which changes its solubility in an alkali developer under the action of acid and has substituents of the formula: C₆H₁₁ - (CH₂)_nOCH(CH₂CH₃) - wherein C₆H₁₁ is cyclohexyl and n = 0,1. The composition has many advantages including improved focal latitude, improved resolution, minimized line width variation or shape degradation even on long-term PED, minimized defect left after coating, development and stripping, and improved pattern profile after development and is suited for microfabrication by any lithog., especially deep UV lithog.

IT 159296-87-4D, tert-Butyl **acrylate**-p-hydroxystyrene **copolymer**, cyclohexyloxypropyl ethers 200808-68-0D, tert-Butyl **acrylate**-p-hydroxystyrene-styrene **copolymer**, cyclohexyloxypropyl ethers 326925-68-2, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate **copolymer** 326925-68-2D, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate **copolymer**, cyclohexyloxypropyl ethers 362478-99-7D, 1,4-Butanediol divinyl ether-p-hydroxystyrene-1-ethylcyclopentyl methacrylate **copolymer**, cyclohexyloxypropyl ethers

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(**chemical amplified** pos. **resist** compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)

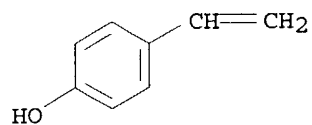
RN 159296-87-4 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

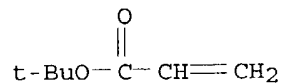
CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



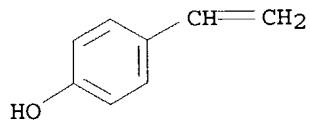
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

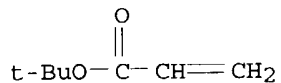
CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2

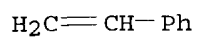


CM 3

CRN 100-42-5

CMF C8 H8

KOROMA EIC1700



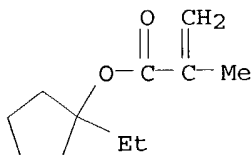
RN 326925-68-2 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1

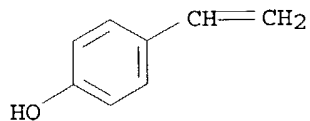
CMF C11 H18 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



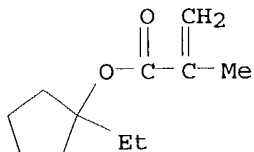
RN 326925-68-2 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with
4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1

CMF C11 H18 O2

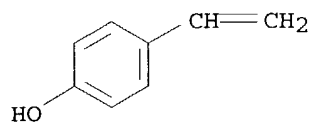


KOROMA EIC1700

CM 2

CRN 2628-17-3

CMF C8 H8 O



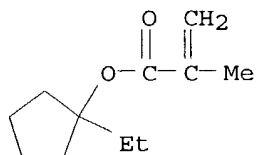
RN 362478-99-7 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 1,4-bis(ethenyloxy)butane and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1

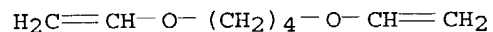
CMF C11 H18 O2



CM 2

CRN 3891-33-6

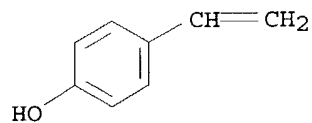
CMF C8 H14 O2



CM 3

CRN 2628-17-3

CMF C8 H8 O



KOROMA EIC1700

IC ICM G03F007-039
NCL 430287100
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST **chem amplified** pos photoresist compn UV lithog;
resist chem amplified pos compn UV photolithog
IT Photolithography
Positive **photoresists**
(UV; **chemical amplified** pos. **resist** compns.
with improved resolution, pattern profile and focal latitude for deep UV lithog.)
IT 24979-70-2DP, Poly(p-hydroxystyrene), cyclohexyloxypropyl, cyclohexylmethyloxypropyl, 1-ethoxyethyl and tert-butoxycarbonyl derivs.
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; PROC (Process); USES (Uses)
(**chemical amplified** pos. **resist** compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)
IT 159296-87-4D, tert-Butyl **acrylate**-p-hydroxystyrene **copolymer**, cyclohexyloxypropyl ethers 200808-68-0D, tert-Butyl **acrylate**-p-hydroxystyrene-styrene **copolymer**, cyclohexyloxypropyl ethers 326925-68-2, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate **copolymer** 326925-68-2D, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate **copolymer**, cyclohexyloxypropyl ethers 362478-99-7D, 1,4-Butanediol divinyl ether-p-hydroxystyrene-1-ethylcyclopentyl methacrylate **copolymer**, cyclohexyloxypropyl ethers 362479-00-3D, 1,4-Butane diol divinyl ether-p-hydroxystyrene **copolymer**, cyclohexylmethyloxypropyl derivs. 369385-37-5D, p-Hydroxystyrene-1,2-Bis(vinyloxy)propane **copolymer**, cyclohexyloxypropyl and 1-ethoxypropyl derivs.
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(**chemical amplified** pos. **resist** compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)
IT 165180-83-6P, Cyclohexyl 1-propenyl ether
RL: PRP (Properties); RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)
(in preparation of base resin for **chemical amplified** pos. **resist** compns.)
IT 106-95-6, Allyl bromide, reactions 108-93-0, Cyclohexanol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of base resin for **chemical amplified** pos. **resist** compns.)
IT 14289-64-6P, Allyl cyclohexyl ether
RL: RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)
(in preparation of base resin for **chemical amplified** pos. **resist** compns.)
IT 13891-29-7, Triphenylsulfonium p-toluenesulfonate 39153-56-5, Bis(2,4-dimethylphenylsulfonyl)diazomethane 83697-56-7 138529-81-4,

Bis(cyclohexylsulfonyl)diazomethane 138529-84-7, Bis(tert-butylsulfonyl)diazomethane 258872-08-1, Tris(4-butoxyphenyl)sulfonium nonafluorobutane-sulfonate 326925-52-4 369385-38-6 369385-39-7
 RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(photoacid generator; **chemical amplified** pos.)

resist compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)

IT 369385-35-3DP, p-tert-Butoxystyrene-p-(chloromethyl)styrene **copolymer**, cyclohexyloxypropyl and tert-butoxycarbonyl derivs.

RL: PEP (Physical, engineering or chemical process); **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; PROC (Process); USES (Uses)

(tri-, nona-branched; **chemical amplified** pos.)

resist compns. with improved resolution, pattern profile and focal latitude for deep UV lithog.)

L26 ANSWER 36 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:581559 CAPLUS

DOCUMENT NUMBER: 135:160153

TITLE: Radiation-sensitive resin composition

INVENTOR(S): Numata, Jun; Suzuki, Aki; Hara, Hiromichi; Natsume, Norihiro; Murata, Kiyoshi; Yamamoto, Masafumi; Soyano, Akimasa; Kajita, Toru; Shimokawa, Tsutomu

PATENT ASSIGNEE(S): JSR Corp., Japan

SOURCE: Eur. Pat. Appl., 77 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1122605	A2	20010808	EP 2001-102326	20010201
EP 1122605	A3	20010919		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001215689	A2	20010810	JP 2000-28456	20000204
JP 2002082438	A2	20020322	JP 2000-273962	20000908
US 2001023050	A1	20010920	US 2001-774714	20010201
US 6623907	B2	20030923		
SG 90230	A1	20020723	SG 2001-565	20010205

PRIORITY APPLN. INFO.: JP 2000-28456 A 20000204
 JP 2000-273962 A 20000908

AB The invention relates to a pos.- or neg.-tone radiation sensitive resin composition suitable as a **resist** for ultra-microprocessing using UV, deep-UV, x-ray radiation and charged particle rays. A pos. tone radiation-sensitive resin composition containing (a) a low mol. weight compound having
 at least one amino group in which the nitrogen atom has at least one hydrogen atom bonded thereto and at least one of the hydrogen atoms is

replaced by a tert-butoxycarbonyl group, (b) a photoacid generator and (c) a resin insol. or scarcely soluble in alkali which is protected by an acid-soluble group and becomes soluble in alkali when the acid-dissociating group dissocs. or an alkali-soluble resin and an alkali solubility control agent, is disclosed. Also disclosed is a neg.-tone radiation sensitive resin composition comprising a low mol. weight compound, a photoacid generator, and an alkali-soluble resin, and a compound capable of crosslinking with alkali-soluble resin in the presence of an acid. The composition is useful as a **chem . amplified resist** which effectively responds to various radiations, exhibits superior sensitivity and resolution, forms fine patterns at a high precision and in a stable manner even if the patterns are isolated line patterns.

IT 200808-68-0, Styrene-p-hydroxystyrene-tert-butyl acrylate copolymer

RL: MOA (Modifier or additive use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)

(pos.-tone radiation-sensitive composition containing acid-dissociating group resin)

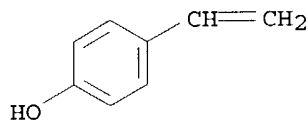
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

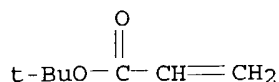
CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2

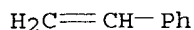


CM 3

CRN 100-42-5

KOROMA EIC1700

CMF C8 H8



IC ICM G03F007-004
ICS G03F007-038; G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST radiation resin neg pos tone **resist**

IT **Resists**
(chemical amplified; pos.-tone radiation-sensitive resin composition containing alkali-soluble acid-dissociating group containing polymer)

IT Aminoplasts
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(pos.-tone radiation-sensitive composition containing crosslinking agent)

IT **Photoresists**
(pos.-tone radiation-sensitive resin composition containing alkali-soluble acid-dissociating group containing polymer)

IT Polymers, uses
RL: NUU (Other use, unclassified); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(pos.-tone radiation-sensitive resin composition containing alkali-soluble acid-dissociating group containing polymer)

IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate 133710-62-0
138529-81-4 185195-30-6 194999-85-4 205514-94-9 353275-43-1
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(acid generator; pos.-tone radiation-sensitive resin composition containing acid generator agent of)

IT 59255-81-1 151476-40-3 193810-83-2 330576-56-2 353275-42-0
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(acid-diffusion control agent; pos.-tone radiation-sensitive resin composition containing acid-diffusion control agent of)

IT 97-64-3, Ethyl lactate 110-43-0, 2_Heptanone 763-69-9, Ethyl 3-ethoxypropionate 84540-57-8, Propylene glycol monomethyl ether acetate
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(pos.-tone radiation-sensitive composition containing)

IT 59269-51-1D, Polyhydroxystyrene, tert-Bu and tert-butoxycarbonyl and ethoxyethyl and cyclohexyloxyethyl group modified 200808-68-0, Styrene-p-hydroxystyrene-tert-butyl **acrylate copolymer**
353275-44-2 353275-46-4 353275-47-5
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(pos.-tone radiation-sensitive composition containing acid-dissociating group resin)

KOROMA EIC1700

IT 24979-70-2, Poly(4-hydroxystyrene) 24979-74-6, 4-Hydroxystyrene-styrene
copolymer
 RL: NUU (Other use, unclassified); POF (Polymer in formulation); TEM
 (Technical or engineered material use); USES (Uses)
 (pos.-tone radiation-sensitive composition containing alkali-soluble resin
 of)
 IT 9011-05-6 17464-88-9, CYMEL 1174
 RL: NUU (Other use, unclassified); TEM (Technical or engineered material
 use); USES (Uses)
 (pos.-tone radiation-sensitive composition containing crosslinking agent)
 IT 305379-12-8P 330576-44-8P 353275-41-9P 353276-47-8P
 RL: NUU (Other use, unclassified); POF (Polymer in formulation); SPN
 (**Synthetic preparation**); TEM (Technical or engineered material use);
PREP (Preparation); USES (Uses)
 (pos.-tone radiation-sensitive resin composition containing alkali-soluble
 acid-dissociating group)

L26 ANSWER 37 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:524739 CAPLUS

DOCUMENT NUMBER: 135:114444

TITLE: Electron beam or x-ray negative-working **resist**
 composition

INVENTOR(S): Aoi, Toshiaki; Adegawa, Yutaka; Yagihara, Morio

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 85 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1117004	A2	20010718	EP 2001-100113	20010112
EP 1117004	A3	20030813		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001337452	A2	20011207	JP 2001-5374	20010112
PRIORITY APPLN. INFO.:			JP 2000-4766	A 20000113
			JP 2000-84469	A 20000324

AB The invention relates to a neg.-working **resist** composition useful for
 super microlithog. such as VLSI and high-capacity microchips and to a
 composition capable of forming microfine patterns using X-rays and an electron
 beam, and to a composition suitable for working of semiconductor devices using
 an electron beam. A neg.-working **resist** composition for electron
 beams or x-rays comprises (a) a compound generating an acid and/or radical
 species by the irradiation of electron beams or x-rays, (b) a resin which is
 insol. in H₂O and soluble in an alkali aqueous solution, (c) a crosslinking
 agent
 causing crosslinking with the resin of component (b) by the action of an
 acid, and (d) a compound having ≥ 1 unsatd. bond capable of being
 polymerized by an acid and/or a radical, and a neg.-working **resist**

composition for electron beams or x-rays comprising (a) a compound generating an acid and/or radical species by the irradiation of electron beams or x-rays, (b') a resin having ≥ 1 unsatd. bond polymerizable by an acid and/or an alkali, which is insol. in H₂O but soluble in an alkali aqueous solution, and (c) a crosslinking agent causing crosslinking with the resin (b') by the action of an acid are disclosed.

IT 110123-10-9P, 4-Hydroxystyrene-2-hydroxyethyl acrylate copolymer

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(synthesis of alkali-soluble resin for neg.-working photoresist composition for X-ray or electron beam lithog.)

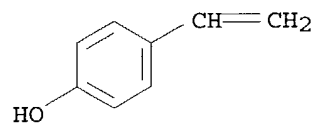
RN 110123-10-9 CAPLUS

CN 2-Propenoic acid, 2-hydroxyethyl ester, polymer with 4-ethenylphenol (9CI)
(CA INDEX NAME)

CM 1

CRN 2628-17-3

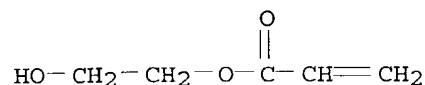
CMF C8 H8 O



CM 2

CRN 818-61-1

CMF C5 H8 O3



IC ICM G03F007-038

ICS G03F007-004; G03F007-028

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 36, 76

ST electron beam x ray neg photoresist crosslinking hydroxystyrene polymer

IT **Photoresists**

KOROMA EIC1700

(**chemical-amplified**; neg.-working photoresist composition for X-ray or electron beam lithog. containing alkali-soluble resin and acidic crosslinking agent)

IT Crosslinking agents
Electron beam lithography
X-ray lithography
(neg.-working photoresist composition for X-ray or electron beam lithog. containing alkali-soluble resin and acidic crosslinking agent)

IT 3089-11-0P 32449-09-5P
RL: DEV (Device component use); **IMF (Industrial manufacture)**;
MOA (Modifier or additive use); **PREP (Preparation)**; **USES (Uses)**
(crosslinking agent; crosslinking agent for neg.-working photoresist composition for X-ray or electron beam lithog.)

IT 153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate
168634-95-5P 258341-98-9P 270563-93-4P 270563-96-7P 279244-43-8P
349619-92-7P 349647-26-3P
RL: DEV (Device component use); **IMF (Industrial manufacture)**;
MOA (Modifier or additive use); **PREP (Preparation)**; **USES (Uses)**
(photoacid generator; acid-generating agent in neg.-working photoresist composition for X-ray or electron beam lithog.)

IT 15625-89-5, Trimethylolpropane triacrylate 17831-71-9,
Tetraethyleneglycol diacrylate 29570-58-9, Dipentaerythritol
hexaacrylate
RL: DEV (Device component use); **NUU (Other use, unclassified)**; **RCT (Reactant)**; **RACT (Reactant or reagent)**; **USES (Uses)**
(polymerizable monomer in neg.-working photoresist composition for X-ray or electron beam lithog.)

IT 161679-94-3P 161679-95-4P 161679-98-7P 162846-57-3P 185502-11-8P
185502-14-1P 185502-15-2P 197087-73-3P 197087-74-4P
RL: DEV (Device component use); **IMF (Industrial manufacture)**;
MOA (Modifier or additive use); **SPN (Synthetic preparation)**;
PREP (Preparation); **USES (Uses)**
(synthesis of acid crosslinking agent for neg.-working photoresist composition for X-ray or electron beam lithog.)

IT 270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate
RL: DEV (Device component use); **IMF (Industrial manufacture)**;
SPN (Synthetic preparation); **PREP (Preparation)**; **USES (Uses)**
(synthesis of acid-generating agent for neg.-working photoresist composition for X-ray or electron beam lithog.)

IT 24979-73-5P, 3-Hydroxystyrene-styrene copolymer 24979-74-6P,
4-Hydroxystyrene-styrene copolymer 110123-10-9P,
4-Hydroxystyrene-2-hydroxyethyl acrylate copolymer
171429-59-7P, 4-Hydroxystyrene-4-acetoxystyrene copolymer
185405-14-5P 349647-01-4P 349647-02-5P 349647-03-6P 349647-04-7P
349647-05-8P 349647-06-9P 349647-07-0P 349647-08-1P 349647-10-5P
349647-12-7P 349647-14-9P 349647-16-1P 349647-18-3P 349647-19-4P
349647-21-8P 349647-23-0P 349652-45-5P 349652-47-7P 349652-48-8P
RL: DEV (Device component use); **IMF (Industrial manufacture)**;
POF (Polymer in formulation); **SPN (Synthetic preparation)**; **TEM (Technical or engineered material use)**; **PREP (Preparation)**; **USES (Uses)**

(Uses)

(synthesis of alkali-soluble resin for neg.-working photoresist composition for X-ray or electron beam lithog.)

L26 ANSWER 38 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:451200 CAPLUS

DOCUMENT NUMBER: 135:68550

TITLE: Radiation-sensitive **chemically amplified resist** composition containing **copolymer** of **acrylic** monomer and styrene derivative monomer

INVENTOR(S): Nishimura, Yukio; Kobayashi, Eiichi; Shiotani, Takeo; Shimokawa, Tsutomu

PATENT ASSIGNEE(S): JSR Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

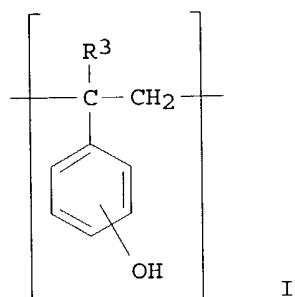
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001166478	A2	20010622	JP 1999-344910	19991203
PRIORITY APPLN. INFO.:			JP 1999-344910	19991203

GI



AB The composition contains a **copolymer** and a radiation sensitive acid-generator, wherein the **copolymer** has [-C(R1)(COOR2)-CH2-] (R1 = H, methyl; R2 = acid-sensitive C_≥11 alicyclic leaving group) and I (R3 = H, methyl). The composition, which contains the **copolymer** of **acrylic** and styrene derivative monomers, provides the **resist** of the decreased post exposure delay on the pattern linewidth nor pattern profiles.

IT 200808-68-0P, 4-Hydroxystyrene-styrene-tert-butyl **acrylate**

copolymer 345349-50-0P 345349-55-5P
345349-63-5P 345349-68-0P 345349-73-7P
345349-78-2P 345349-86-2P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(radiation-sensitive chemical amplified resist composition containing copolymer of acrylic monomer and styrene derivative monomer)

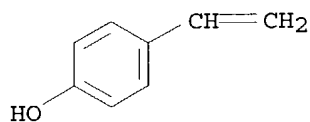
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

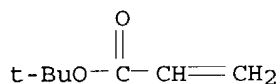
CMF C8 H8 O



CM 2

CRN 1663-39-4

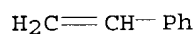
CMF C7 H12 O2



CM 3

CRN 100-42-5

CMF C8 H8



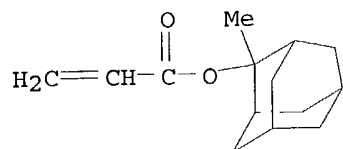
RN 345349-50-0 CAPLUS

CN 2-Propenoic acid, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

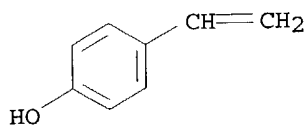
KOROMA EIC1700

CRN 249562-06-9
CMF C14 H20 O2



CM 2

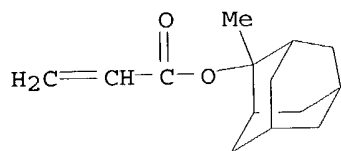
CRN 2628-17-3
CMF C8 H8 O



RN 345349-55-5 CAPLUS
CN 2-Propenoic acid, 2-methyltricyclo[3.3.1.13,7]dec-2-yl ester, polymer with
ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

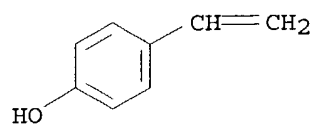
CM 1

CRN 249562-06-9
CMF C14 H20 O2



CM 2

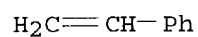
CRN 2628-17-3
CMF C8 H8 O



CM 3

CRN 100-42-5

CMF C8 H8



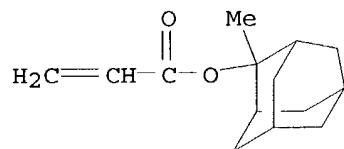
RN 345349-63-5 CAPLUS

CN 2-Propenoic acid, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 249562-06-9

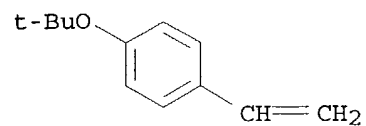
CMF C14 H20 O2



CM 2

CRN 95418-58-9

CMF C12 H16 O

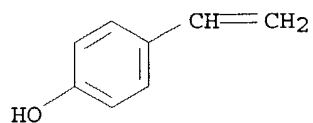


CM 3

CRN 2628-17-3

KOROMA EIC1700

CMF C8 H8 O



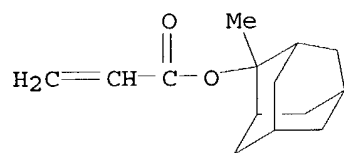
RN 345349-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 249562-06-9

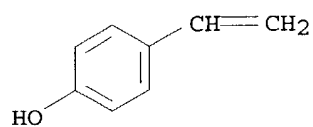
CMF C14 H20 O2



CM 2

CRN 2628-17-3

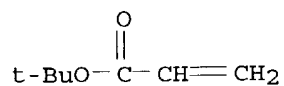
CMF C8 H8 O



CM 3

CRN 1663-39-4

CMF C7 H12 O2



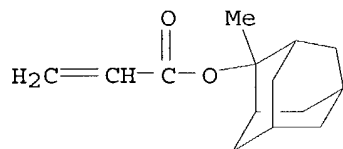
KOROMA EIC1700

RN 345349-73-7 CAPLUS
 CN 2-Propenoic acid, 1,1,4,4-tetramethyl-1,4-butanediyl ester, polymer with
 1-(1,1-dimethylethoxy)-4-ethenylbenzene, 4-ethenylphenol and
 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 249562-06-9

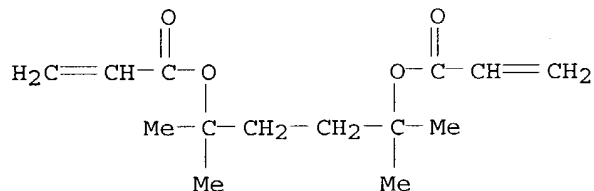
CMF C14 H20 O2



CM 2

CRN 188837-15-2

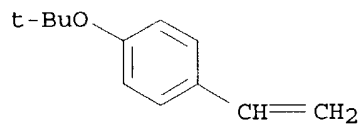
CMF C14 H22 O4



CM 3

CRN 95418-58-9

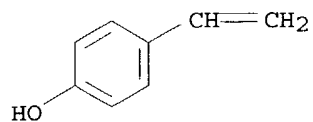
CMF C12 H16 O



CM 4

CRN 2628-17-3

CMF C8 H8 O



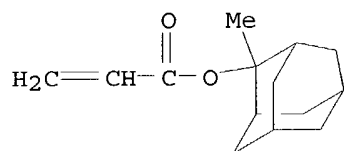
RN 345349-78-2 CAPLUS

CN 2-Propenoic acid, 1,1,4,4-tetramethyl-1,4-butanediyl ester, polymer with 1,1-dimethylethyl 2-propenoate, 4-ethenylphenol and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 249562-06-9

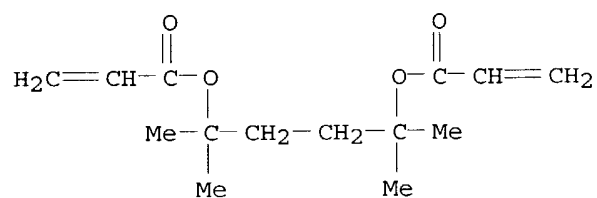
CMF C14 H20 O2



CM 2

CRN 188837-15-2

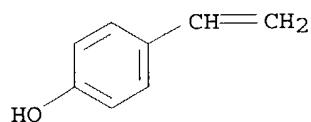
CMF C14 H22 O4



CM 3

CRN 2628-17-3

CMF C8 H8 O

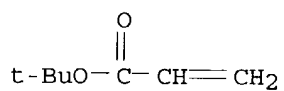


KOROMA EIC1700

CM 4

CRN 1663-39-4

CMF C7 H12 O2



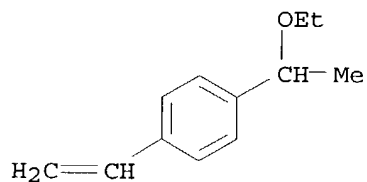
RN 345349-86-2 CAPLUS

CN 2-Propenoic acid, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with
1-ethenyl-4-(1-ethoxyethyl)benzene and 4-ethenylphenol (9CI) (CA INDEX
NAME)

CM 1

CRN 345349-85-1

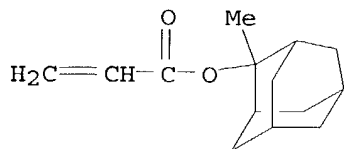
CMF C12 H16 O



CM 2

CRN 249562-06-9

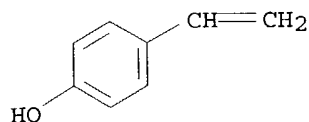
CMF C14 H20 O2



CM 3

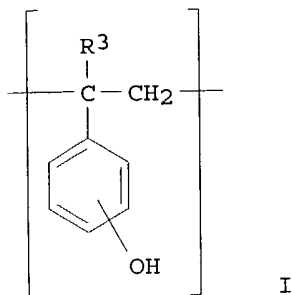
CRN 2628-17-3

CMF C8 H8 O



IC ICM G03F007-039
 ICS C08L025-18; C08L033-06; H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 35
 ST radiation sensitive amplified **resist** compn **copolymer**
acrylic monomer styrene
 IT **Photoresists**
 (radiation-sensitive **chemical amplified resist**
 composition containing **copolymer** of **acrylic** monomer and
 styrene derivative monomer)
 IT 200808-68-0P, 4-Hydroxystyrene-styrene-tert-butyl **acrylate**
copolymer 345349-50-0P 345349-55-5P
 345349-63-5P 345349-68-0P 345349-73-7P
 345349-78-2P 345349-86-2P
 RL: **SPN** (Synthetic preparation); TEM (Technical or engineered
 material use); **PREP** (Preparation); USES (Uses)
 (radiation-sensitive **chemical amplified resist**
 composition containing **copolymer** of **acrylic** monomer and
 styrene derivative monomer)
 L26 ANSWER 39 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2001:451196 CAPLUS
 DOCUMENT NUMBER: 135:68548
 TITLE: Radiation-sensitive **chemically**
amplified resist composition
 containing specific **copolymer**
 INVENTOR(S): Nishimura, Yukio; Kobayashi, Eiichi; Shiotani, Takeo;
 Shimokawa, Tsutomu
 PATENT ASSIGNEE(S): JSR Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001166474	A2	20010622	JP 1999-344911	19991203
PRIORITY APPLN. INFO.:			JP 1999-344911	19991203
GI				



AB The title composition contains a radiation-sensitive acid generator and a **copolymer** having repeating unit $[-C(R1)(COOR2)-CH_2-]$ (R1 = H, methyl; R2 = C>10 alicyclic) and of repeating unit I (R3 = H, methyl) with ≤ 50 % content. The composition, which contains the **copolymer** having the aforementioned repeating units, shows the decreased effect of the post exposure delay(PED) on the pattern profiles.

IT 200808-68-0P, 4-Hydroxystyrene-styrene-tert-butyl **acrylate**
copolymer 345348-83-6P 345348-84-7P
 345348-85-8P 345631-88-1P 345631-89-2P
 345631-90-5P 345631-91-6P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (radiation active **chemical amplified resist** composition containing specific **copolymer**)

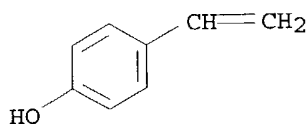
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

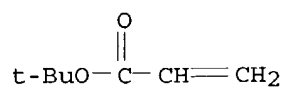
CMF C8 H8 O



CM 2

CRN 1663-39-4

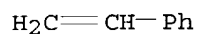
CMF C7 H12 O2



CM 3

CRN 100-42-5

CMF C8 H8



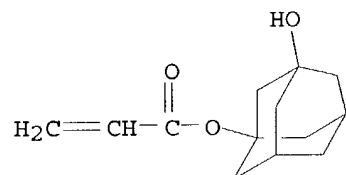
RN 345348-83-6 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol and 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 216581-76-9

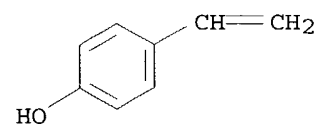
CMF C13 H18 O3



CM 2

CRN 2628-17-3

CMF C8 H8 O

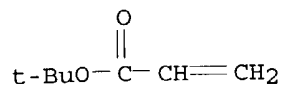


CM 3

CRN 1663-39-4

KOROMA EIC1700

CMF C7 H12 O2

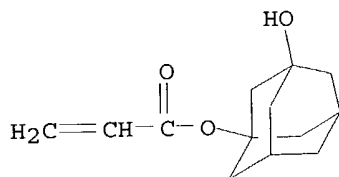


RN 345348-84-7 CAPLUS
 CN 2-Propenoic acid, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl ester, polymer
 with 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenol (9CI)
 (CA INDEX NAME)

CM 1

CRN 216581-76-9

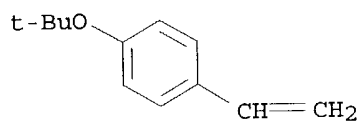
CMF C13 H18 O3



CM 2

CRN 95418-58-9

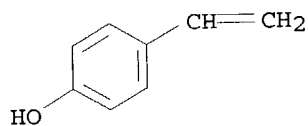
CMF C12 H16 O



CM 3

CRN 2628-17-3

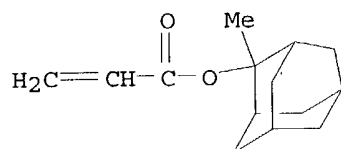
CMF C8 H8 O



RN 345348-85-8 CAPLUS
 CN 2-Propenoic acid, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl ester, polymer
 with 4-ethenylphenol and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-propenoate
 (9CI) (CA INDEX NAME)

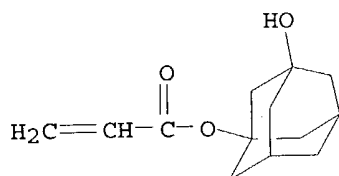
CM 1

CRN 249562-06-9
 CMF C14 H20 O2



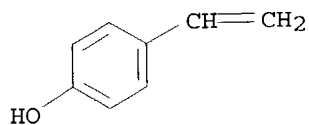
CM 2

CRN 216581-76-9
 CMF C13 H18 O3



CM 3

CRN 2628-17-3
 CMF C8 H8 O



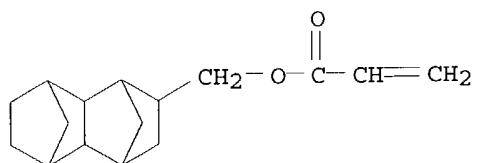
RN 345631-88-1 CAPLUS
 CN 2-Propenoic acid, [decahydro-6(or 7)-hydroxy-1,4:5,8-dimethanonaphthalen-2-yl]methyl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 345631-87-0

CMF C16 H22 O3

CCI IDS

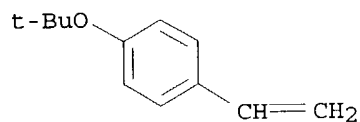


D1- OH

CM 2

CRN 95418-58-9

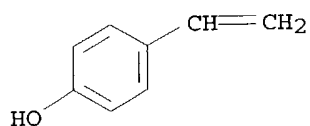
CMF C12 H16 O



CM 3

CRN 2628-17-3

CMF C8 H8 O



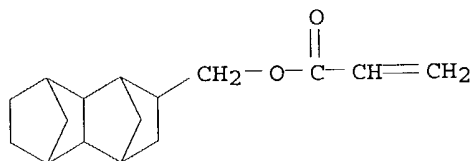
RN 345631-89-2 CAPLUS

CN 2-Propenoic acid, 1,1,4,4-tetramethyl-1,4-butanediyl ester, polymer with
[decahydro-6(or 7)-hydroxy-1,4:5,8-dimethanonaphthalen-2-yl]methyl
2-propenoate, 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenol
(9CI) (CA INDEX NAME)

CM 1

KOROMA EIC1700

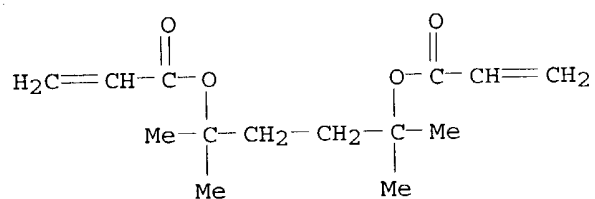
CRN 345631-87-0
CMF C16 H22 O3
CCI IDS



D1-OH

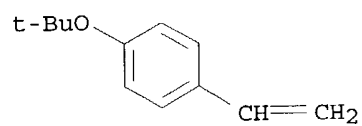
CM 2

CRN 188837-15-2
CMF C14 H22 O4



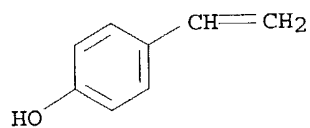
CM 3

CRN 95418-58-9
CMF C12 H16 O



CM 4

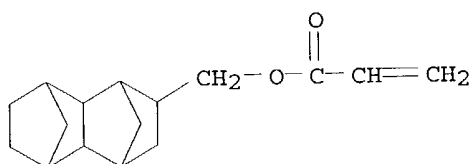
CRN 2628-17-3
CMF C8 H8 O



RN 345631-91-6 CAPLUS
 CN 2-Propenoic acid, [decahydro-6(or 7)-hydroxy-1,4:5,8-dimethanonaphthalen-2-yl]methyl ester, polymer with 1,1-dimethylethyl 2-propenoate, 1-ethenyl-4-(1-ethoxyethoxy)benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

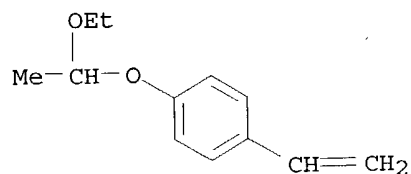
CRN 345631-87-0
 CMF C16 H22 O3
 CCI IDS



D1-OH

CM 2

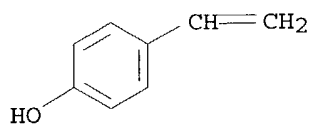
CRN 157057-20-0
 CMF C12 H16 O2



CM 3

CRN 2628-17-3
 CMF C8 H8 O

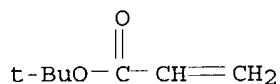
KOROMA EIC1700



CM 4

CRN 1663-39-4

CMF C7 H12 O2



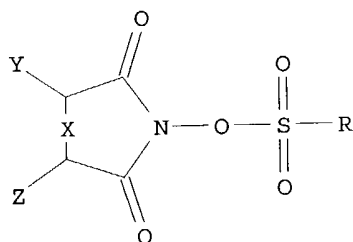
IC ICM G03F007-038
ICS C08L033-06; G03F007-004; H01L021-027; C08L025-18
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST radiation active amplified **resist** compn copolymer
IT Light-sensitive materials
 Photoresists
 (radiation active **chemical amplified resist**
 composition containing specific **copolymer**)
IT 200808-68-0P, 4-Hydroxystyrene-styrene-tert-butyl **acrylate**
 copolymer 345348-83-6P 345348-84-7P
 345348-85-8P 345631-88-1P 345631-89-2P
 345631-90-5P 345631-91-6P
RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered
 material use); **PREP (Preparation)**; USES (Uses)
 (radiation active **chemical amplified resist**
 composition containing specific **copolymer**)

L26 ANSWER 40 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:356249 CAPLUS
DOCUMENT NUMBER: 134:374039
TITLE: Radiation-sensitive resin composition comprising
 N-sulfonyloxyimide compound as an acid-generating
 agent for **chemically amplified**
 resists
INVENTOR(S): Wang, Yong; Kobayashi, Eiichi; Miyaji, Masaaki;
 Numata, Jun; Shimokawa, Tsutomu
PATENT ASSIGNEE(S): Jsr Corp., Japan
SOURCE: Eur. Pat. Appl., 53 pp.
 CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1

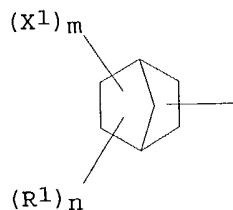
KOROMA EIC1700

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1099691	A1	20010516	EP 2000-124457	20001108
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001199955	A2	20010724	JP 2000-336666	20001102
SG 92753	A1	20021119	SG 2000-6373	20001107
TW 513408	B	20021211	TW 2000-89123601	20001108
US 6517992	B1	20030211	US 2000-707939	20001108
PRIORITY APPLN. INFO.:			JP 1999-317652	A 19991109
OTHER SOURCE(S):		MARPAT 134:374039		
GI				



I



II

AB Disclosed are a N-sulfonyloxyimide compound having the formula I [X = single, double bond; Y, Z = H, C1-10-alkyl, and may combine to form alicyclic, heterocyclic structure; R = group of the formula II (X1 = organic group having an ester linkage, R1 = C1-10-alkyl, alkoxyl; m = 1-11, n = 0-10, m + n ≤ 11)]; and **chemical amplified** pos.

and neg. radiation-sensitive resin comps. using the compound The N-sulfonyloxyimide compound is a good radiation-sensitive acid-generating agent, has no problem of volatilization or side reaction, can keep dark reaction from taking place during the storage. The compound is useful as a component of radiation-sensitive **chemical amplified resists**.

IT 200808-68-0P, tert-Butyl **acrylate**-p-Hydroxystyrene-styrene **copolymer** 220767-18-0P, tert-Butyl **acrylate**-2,5-dimethylhexane-2,5-diacrylate-p-hydroxystyrene-styrene **copolymer** 220767-20-4P, p-tert-Butoxystyrene-2,5-dimethylhexane-2,5-diacrylate-p-hydroxystyrene **copolymer** 292840-55-2P, p-tert-Butoxystyrene-tert-butyl **acrylate**-p-hydroxystyrene **copolymer**

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(preparation of radiation-sensitive resin for **chemical**

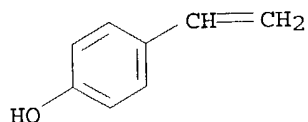
amplified resist compns.)

RN 200808-68-0 CAPLUS
CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and
4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

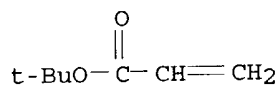
CMF C8 H8 O



CM 2

CRN 1663-39-4

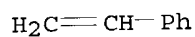
CMF C7 H12 O2



CM 3

CRN 100-42-5

CMF C8 H8

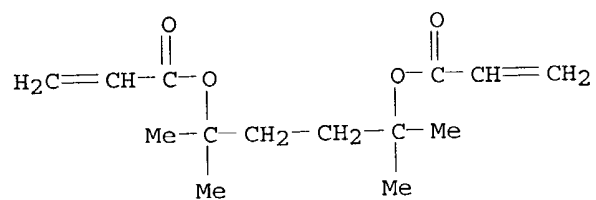


RN 220767-18-0 CAPLUS
CN 2-Propenoic acid, 1,1,4,4-tetramethyl-1,4-butanediyl ester, polymer with
1,1-dimethylethyl 2-propenoate, ethenylbenzene and 4-ethenylphenol (9CI)
(CA INDEX NAME)

CM 1

CRN 188837-15-2

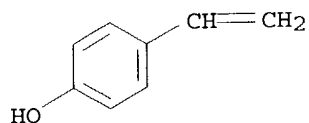
CMF C14 H22 O4



CM 2

CRN 2628-17-3

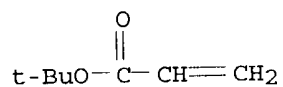
CMF C8 H8 O



CM 3

CRN 1663-39-4

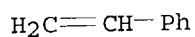
CMF C7 H12 O2



CM 4

CRN 100-42-5

CMF C8 H8



RN 220767-20-4 CAPLUS

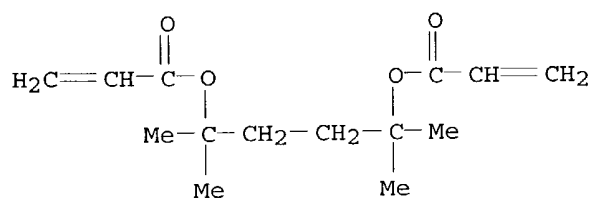
CN 2-Propenoic acid, 1,1,4,4-tetramethyl-1,4-butanediyl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 188837-15-2

KOROMA EIC1700

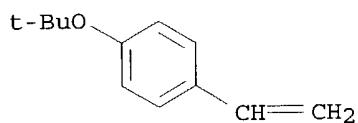
CMF C14 H22 O4



CM 2

CRN 95418-58-9

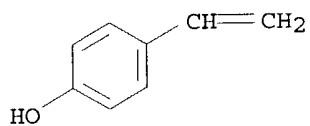
CMF C12 H16 O



CM 3

CRN 2628-17-3

CMF C8 H8 O



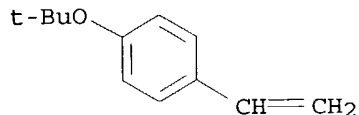
RN 292840-55-2 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with
1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenol (9CI) (CA
INDEX NAME)

CM 1

CRN 95418-58-9

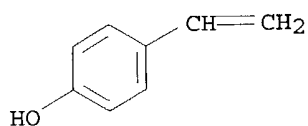
CMF C12 H16 O



CM 2

CRN 2628-17-3

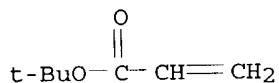
CMF C8 H8 O



CM 3

CRN 1663-39-4

CMF C7 H12 O2



IC ICM C07D209-48

ICS C07D209-76; G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST **chem amplified resist** photoresist radiation sensitive resin compn; sulfonyloxyimide photoacid generator PAG resist polymer compn prepn

IT **Photoresists**
(radiation-sensitive resin composition comprising N-sulfonyloxyimide compound as an acid-generating agent for **chemical amplified resists**)

IT 339570-78-4P 339570-79-5P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(acid-generating agent; preparation of N-sulfonyloxyimide compound for **chemical amplified resist** compns. as radiation-sensitive acid-generating agent)

IT 78-67-1, AIBN

KOROMA EIC1700

- RL: NUU (Other use, unclassified); USES (Uses)
(preparation of N-sulfonyloxyimide compound for **chemical amplified resist** compns.)
- IT 7398-76-7P
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation of N-sulfonyloxyimide compound for **chemical amplified resist** compns.)
- IT 6066-82-6, N-Hydroxysuccinimide 7631-90-5, Sodium bisulfite 7719-09-7, Thionyl chloride 39743-84-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of N-sulfonyloxyimide compound for **chemical amplified resist** compns.)
- IT 310436-72-7P 339570-77-3P
RL: RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation of N-sulfonyloxyimide compound for **chemical amplified resist** compns.)
- IT 24979-70-2DP, Poly(p-hydroxystyrene), reaction products with di-t-Bu carbonate or cyclohexyl vinyl ether or Et vinyl ether or ethyl-1-propenyl ether 95418-60-3DP, Poly(p-tert-Butoxystyrene), partially hydrolyzed, reaction products with cyclohexyl vinyl ether **200808-68-0P**, tert-Butyl **acrylate**-p-Hydroxystyrene-styrene **copolymer 220767-18-0P**, tert-Butyl **acrylate**-2,5-dimethylhexane-2,5-diacrylate-p-hydroxystyrene-styrene **copolymer 220767-20-4P**, p-tert-Butoxystyrene-2,5-dimethylhexane-2,5-diacrylate-p-hydroxystyrene **copolymer 288622-96-8P**, p-tert-Butoxystyrene-p-Hydroxystyrene-styrene **copolymer 292840-55-2P**, p-tert-Butoxystyrene-tert-butyl **acrylate**-p-hydroxystyrene **copolymer**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; PROC (Process); USES (Uses)
(preparation of radiation-sensitive resin for **chemical amplified resist** compns.)
- IT 109-92-2D, Ethyl vinyl ether, reaction products with poly(p-hydroxystyrene) 928-55-2D, Ethyl-1-propenyl ether, reaction products with poly(p-hydroxystyrene) 2182-55-0D, Cyclohexyl vinyl ether, reaction products with poly(p-hydroxystyrene) 34619-03-9D, Di-tert-butyl carbonate, reaction products with poly(p-hydroxystyrene)
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of radiation-sensitive resin for **chemical amplified resist** compns.)
- IT 72317-19-2, Hydroxystyrene-styrene **copolymer**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(radiation-sensitive resin composition comprising N-sulfonyloxyimide compound

as an acid-generating agent and)
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 41 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2001:62633 CAPLUS
 DOCUMENT NUMBER: 134:123584
 TITLE: **Resist resin for chemically amplified resist** composition and method for pattern formation using same
 INVENTOR(S): Fujiwara, Tadayuki; Wakisaka, Yukiya; Murata, Naoshi
 PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001022074	A2	20010126	JP 1999-198163	19990712
PRIORITY APPLN. INFO.:			JP 1999-198163	19990712

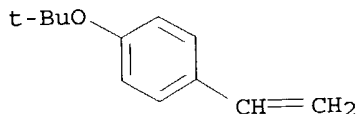
AB The resin is prepared from at least one of monomers of **acrylonitrile**, vinyl acetate, and N-methylolacrylamide and becomes alkali soluble upon reacting with an acid. The resin provides the high dry-etching **resistance**.

IT **321309-67-5P**, p-tert-Butoxystyrene-p-Hydroxystyrene-**acrylonitrile copolymer**
 RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
 (resist resin for chemical amplified resist composition)

RN 321309-67-5 CAPLUS
 CN 2-Propenenitrile, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

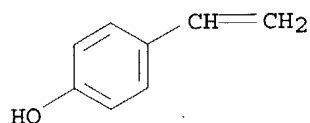
CM 1

CRN 95418-58-9
 CMF C12 H16 O



CM 2

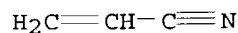
CRN 2628-17-3
 CMF C8 H8 O



CM 3

CRN 107-13-1

CMF C3 H3 N



IC ICM G03F007-039
ICS C08F220-26; C08F220-44; C08F220-56; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 35
ST amplified **resist** resin compn
IT Light-sensitive materials

Photoresists

(**resist** resin for **chemical amplified**

resist composition and method for pattern formation using same)

IT 321309-67-5P, p-tert-Butoxystyrene-p-Hydroxystyrene-
acrylonitrile copolymer 321309-68-6P,
p-tert-Butoxystyrene-p-Hydroxystyrene-N-Methylolmethacrylamide
copolymer 321309-69-7P, 2-Methyl-2-adamantylmethacrylate-β-
Methacryloyloxy-γ-butyrolactone- **acrylonitrile**
copolymer 321309-70-0P, 2-Methyl-2-adamantylmethacrylate-β-
Methacryloyloxy-γ-butyrolactone-N-methylolmethacrylamide
copolymer

RL: SPN (**Synthetic preparation**); TEM (Technical or engineered
material use); PREP (**Preparation**); USES (Uses)

(**resist** resin for **chemical amplified**

resist composition)

L26 ANSWER 42 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:876779 CAPLUS

DOCUMENT NUMBER: 134:49215

TITLE: A **resist** composition

INVENTOR(S): Hujie, Hirotooshi; Maesawa, Tsuneaki; Mori, Yasuyoshi

PATENT ASSIGNEE(S): Wako Pure Chemical Industries, Ltd., Japan

SOURCE: Eur. Pat. Appl., 39 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

KOROMA EIC1700

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1059314	A1	20001213	EP 2000-112208	20000607
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001151824	A2	20010605	JP 2000-161500	20000531
SG 85188	A1	20011219	SG 2000-3078	20000602
US 6432608	B1	20020813	US 2000-589770	20000609
US 2003039920	A1	20030227	US 2002-178239	20020625
PRIORITY APPLN. INFO.:			JP 1999-162540	A 19990609
			JP 1999-259338	A 19990913
			US 2000-589770	A3 20000609

AB This invention relates to a polymer capable of forming an ultra-fine pattern with excellent rectangular shape in a silylated surface resolution process using a **chemical amplified type resist** composition as single layer or the most upper layer among multiple layers and to a **resist** composition using the polymer. The said polymer and **resist** composition are useful in a silylated surface resolution process, and by conducting the silylated surface resolution process using the said **resist** composition, contrast of silylation becomes higher and it becomes possible to obtain ultra-fine pattern regardless of the kind of exposure energy.

IT **313065-75-7DP**, p-tert-Butoxystyrene-cyclohexyl **acrylate copolymer**, hydrolyzed, reaction products with Et vinyl ether and di-tert-Bu dicarbonate **313065-77-9DP**, p-tert-Butoxystyrene-isobornyl **acrylate copolymer**, hydrolyzed, reaction products with Et vinyl ether and dihydropyran or only Et vinyl ether
 RL: **SPN** (**Synthetic preparation**); **TEM** (Technical or engineered material use); **PREP** (**Preparation**); **USES** (Uses)
 (**resist** composition)

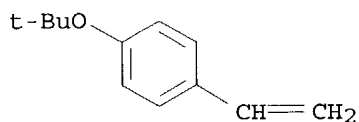
RN 313065-75-7 CAPLUS

CN 2-Propenoic acid, cyclohexyl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

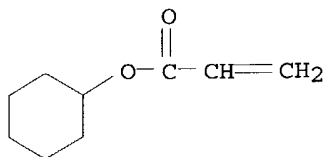
CRN 95418-58-9

CMF C12 H16 O



CM 2

CRN 3066-71-5
 CMF C9 H14 O2

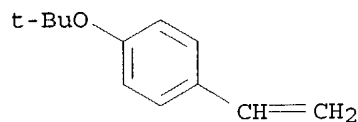


RN 313065-77-9 CAPLUS
 CN 2-Propenoic acid, (1R,2R,4R)-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl ester,
 rel-, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene (9CI) (CA
 INDEX NAME)

CM 1

CRN 95418-58-9

CMF C12 H16 O

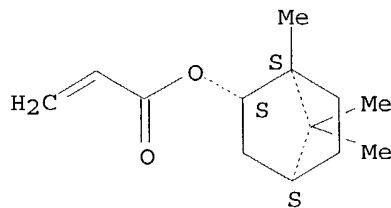


CM 2

CRN 5888-33-5

CMF C13 H20 O2

Relative stereochemistry.



IT 313065-78-0, p-tert-Butoxycarbonyloxy styrene-p-1-(ethoxyethoxy)
 styrene-methyl methacrylate **copolymer**

RL: TEM (Technical or engineered material use); USES (Uses)
 (resist composition)

RN 313065-78-0 CAPLUS

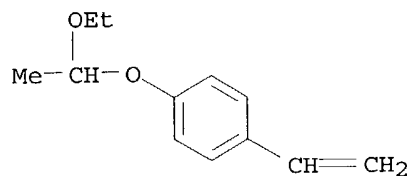
CN 2-Propenoic acid, 2-methyl-, methyl ester, polymer with 1,1-dimethylethyl
 4-ethenylphenyl carbonate and 1-ethenyl-4-(1-ethoxyethoxy)benzene (9CI)
 (CA INDEX NAME)

CM 1

KOROMA EIC1700

CRN 157057-20-0

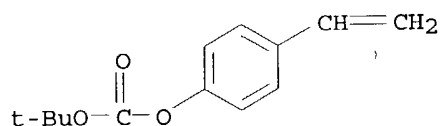
CMF C12 H16 O2



CM 2

CRN 87188-51-0

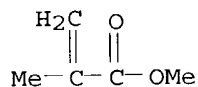
CMF C13 H16 O3



CM 3

CRN 80-62-6

CMF C5 H8 O2



IC ICM C08F212-14

ICS C08F008-00; G03F007-039; G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 37

ST photoresist styrene acrylic polymer

IT **Photoresists**

(UV; resist composition)

IT **Acrylic polymers, preparation**

RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; **USES (Uses)**

(styrene-containing; resist composition)

IT Synthetic polymeric fibers, preparation

RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered

KOROMA EIC1700

material use); **PREP (Preparation)**; **USES (Uses)**
(styrene; **resist** composition)
IT 109-92-2, Ethyl vinyl ether 110-87-2 24424-99-5, Di-tert-butyl
dicarbonate
RL: **RCT (Reactant)**; **RACT (Reactant or reagent)**
(**resist** composition)
IT 95418-60-3DP, p-tert-Butoxystyrene homopolymer, partially hydrolyzed,
reaction products with Et vinyl ether **313065-75-7DP**,
p-tert-Butoxystyrene-cyclohexyl **acrylate copolymer**,
hydrolyzed, reaction products with Et vinyl ether and di-tert-Bu
dicarbonate **313065-77-9DP**, p-tert-Butoxystyrene-isobornyl
acrylate copolymer, hydrolyzed, reaction products with
Et vinyl ether and dihydropyran or only Et vinyl ether
RL: **SPN (Synthetic preparation)**; **TEM (Technical or engineered**
material use); **PREP (Preparation)**; **USES (Uses)**
(**resist** composition)
IT 171429-60-0 177034-67-2 177034-74-1 **313065-78-0**,
p-tert-Butoxycarbonyloxy styrene-p-1-(ethoxyethoxy) styrene-methyl
methacrylate **copolymer** 313065-79-1 313065-80-4 313065-82-6
313065-85-9 313065-87-1
RL: **TEM (Technical or engineered material use)**; **USES (Uses)**
(**resist** composition)
REFERENCE COUNT: 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 43 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:706345 CAPLUS
DOCUMENT NUMBER: 133:288877
TITLE: Oxime derivates and their use as photosensitive acid
donors in **chemically amplified**
photoresist compositions.
INVENTOR(S): Asakura, Toshikage; Yamato, Hitoshi; Ohwa, Masaki;
Birbaum, Jean-Luc; Dietliker, Kurt; Tanabe, Junichi
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: Ger. Offen., 62 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10015255	A1	20001005	DE 2000-10015255	20000328
US 6261738	B1	20010717	US 2000-533952	20000323
AU 766803	B2	20031023	AU 2000-24200	20000330
AU 2000024200	A5	20001005		
PRIORITY APPLN. INFO.:			DE 1999-99810273	A1 19990331
			DE 1999-99810287	A1 19990407
			DE 1999-99810779	A1 19990830
			EP 1999-810273	A 19990331
			EP 1999-810287	A 19990407

EP 1999-810779 A 19990830
 US 2000-533952 A 20000323
 DE 2000-10015255 A 20000328

OTHER SOURCE(S): MARPAT 133:288877

AB **Chemical amplified** photoresist compns. are described which contains a compound that is hardenable under the effect of an acid or becomes more soluble under the effect of an acid and an oxime derivative as a photosensitive acid donor. Thus, a composition containing Maruka Lyncur PHS/STY/TBA **copolymer**, FC 340 flow agent, propylene glycol Me ether acetate, and 2,2,2-trifluoro-1-phenylethanone oxime O-(2,4,6-trimethylphenylsulfonate) was coated on a Si wafer to give a pos.-working **resist**, dried, UV exposed, heated and then developed with aqueous tetramethylammonium hydroxide solution to show a clearing

dose of 0.10 mJ/cm².

IT **200808-68-0**, p-Hydroxystyrene-styrene-tert-butyl **acrylate copolymer**

RL: TEM (Technical or engineered material use); USES (Uses)
 (photosensitive acid donors in **chemical amplified** photoresist compns.)

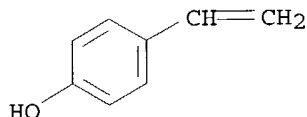
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

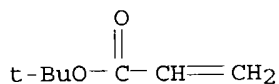
CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2

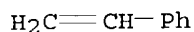


CM 3

CRN 100-42-5

KOROMA EIC1700

CMF C8 H8



IC ICM G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST oxime photosensitive acid donor **chem amplified** photoresistIT **Photoresists**(photosensitive acid donors in **chemical amplified** photoresist compns.)

IT Oximes

RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; **USES (Uses)**(photosensitive acid donors in **chemical amplified** photoresist compns.)

IT Aminoplasts

RL: TEM (Technical or engineered material use); **USES (Uses)** (photosensitive acid donors in **chemical amplified** photoresist compns.)

IT	135481-98-0P	300373-66-4P	300373-67-5P	300373-68-6P	300373-71-1P
	300373-77-7P	300373-79-9P	300373-80-2P	300373-81-3P	300373-82-4P
	300373-88-0P	300373-90-4P	300373-91-5P	300373-94-8P	300374-16-7P
	300374-18-9P	300374-20-3P	300374-22-5P	300374-24-7P	300374-26-9P
	300374-28-1P	300374-30-5P	300374-31-6P	300374-32-7P	300374-34-9P
	300374-36-1P	300374-37-2P	300374-39-4P	300374-41-8P	300374-43-0P
	300374-45-2P	300374-46-3P	300374-48-5P	300374-50-9P	300374-52-1P
	300374-56-5P	300374-58-7P	300374-59-8P	300374-60-1P	300374-61-2P
	300374-64-5P	300374-65-6P	300374-67-8P	300374-70-3P	300374-71-4P
	300374-74-7P	300374-75-8P	300374-76-9P	300374-78-1P	300374-82-7P

RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; **USES (Uses)**(photosensitive acid donors in **chemical amplified** photoresist compns.)

IT 85-46-1, 1-Naphthylsulfonyl chloride 91-16-7 93-11-8,
 2-Naphthylsulfonyl chloride 95-46-5, 2-Bromotoluene 98-68-0,
 4-Methoxyphenylsulfonyl chloride 100-66-3, reactions 100-68-5,
 Thioanisole 108-38-3, reactions 108-67-8, Mesitylene, reactions
 108-88-3, Toluene, reactions 124-63-0, Methylsulfonyl chloride
 383-63-1, Ethyl trifluoroacetate 407-25-0, Trifluoroacetic acid
 anhydride 726-44-3, 1,3-Diphenoxypropane 773-64-8,
 2,4,6-Trimethylphenylsulfonyl chloride 5470-11-1, Hydroxylammonium
 chloride 10147-36-1, 1-Propanesulfonyl chloride 21286-54-4,
 10-Camphorsulfonyl chloride

RL: RCT (Reactant); **RACT (Reactant or reagent)**(photosensitive acid donors in **chemical amplified** photoresist compns.)

KOROMA EIC1700

IT 313-56-4P 341-39-9P 387-57-5P 394-59-2P 434-45-7P,
 2,2,2-Trifluoro-1-phenylethanone 559-91-1P 655-25-4P 711-38-6P,
 2,2,2-Trifluoro-1-(4-methoxyphenyl)ethanone 16184-87-5P 70783-32-3P
 75703-25-2P 83163-75-1P 83163-76-2P 83163-79-5P 92512-69-1P
 98503-50-5P 122243-33-8P 149774-08-3P 175698-47-2P 253585-96-5P
 300373-69-7P 300373-70-0P 300373-72-2P 300373-73-3P 300373-74-4P
 300373-75-5P 300373-76-6P 300373-78-8P 300373-84-6P 300373-86-8P
 300373-92-6P 300373-93-7P 300373-96-0P 300374-00-9P 300374-01-0P
 300374-02-1P 300374-06-5P 300374-08-7P 300374-09-8P 300374-11-2P
 300374-14-5P 300374-15-6P 300374-51-0P 300374-63-4P 300374-66-7P
 300374-68-9P 300374-69-0P 300374-72-5P 300374-73-6P 300374-77-0P
 300374-79-2P 300374-80-5P 300374-81-6P 300374-83-8P 300374-84-9P
 300374-85-0P 300374-86-1P 300374-87-2P 300374-88-3P 300374-89-4P
 300374-90-7P 300374-91-8P 300374-92-9P 300374-93-0P 300374-94-1P
 300374-95-2P

RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; **USES (Uses)**

(photosensitive acid donors in **chemical amplified** photoresist compns.)

IT 9011-05-6, MX 290 24979-70-2, VP 8000 **200808-68-0**,
 p-Hydroxystyrene-styrene-tert-butyl **acrylate copolymer**

RL: TEM (Technical or engineered material use); **USES (Uses)**

(photosensitive acid donors in **chemical amplified** photoresist compns.)

L26 ANSWER 44 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:624804 CAPLUS

DOCUMENT NUMBER: 133:230379

TITLE: Radiation-sensitive **chemically amplified** positive-working resist resin composition

INVENTOR(S): Kobayashi, Eiichi; Yokoyama, Kenichi; Nishimura, Yukio

PATENT ASSIGNEE(S): JSR Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 22 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

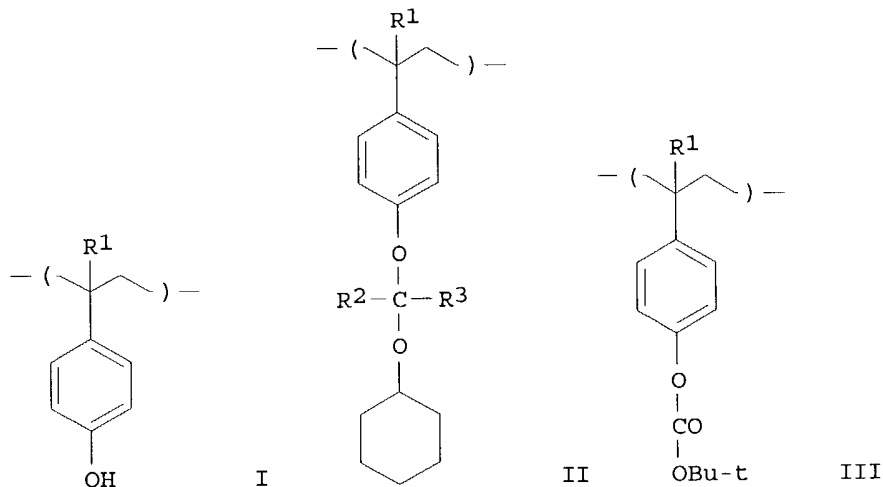
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000241980	A2	20000908	JP 1999-362868	19991221
SG 81342	A1	20010619	SG 1999-6524	19991222
PRIORITY APPLN. INFO.:			JP 1998-364905	A 19981222

GI



AB The radiation-sensitive **chemical amplified** pos.-working **resist** resin composition contains a **copolymer** having repeating unit I(R1 = H, methyl) and II (R1-2 = H, methyl; R3 = Me, ethyl), a **copolymer** having repeating unit III (R1 = H, methyl), and a photoacid generator. The addition of the resins to the composition provides

the excellent sensitivity, resolution, and pattern shapes.

IT **174476-25-6P**, 4-Acetoxystyrene-tert-butyl **acrylate copolymer** **291282-97-8DP**, 4-tert-Butoxystyrene-acrylonitrile **copolymer**, reaction products with di-tert-Bu carbonate
 RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
 (radiation-sensitive **chemical amplified** pos.-working **resist** resin composition)

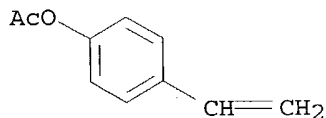
RN 174476-25-6 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 2628-16-2

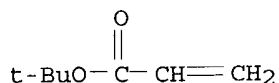
CMF C10 H10 O2



CM 2

CRN 1663-39-4

CMF C7 H12 O2



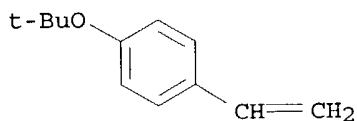
RN 291282-97-8 CAPLUS

CN 2-Propenenitrile, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene
(9CI) (CA INDEX NAME)

CM 1

CRN 95418-58-9

CMF C12 H16 O



CM 2

CRN 107-13-1

CMF C3 H3 N



IC ICM G03F007-039

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

ST radiation chem amplified pos resist compn

IT Photoresists

(chemical amplified, pos.-working; radiation-sensitive
chemical amplified pos.-working resist resin
composition)

IT 24979-74-6P, 4-Vinylphenol-styrene copolymer 95418-60-3P,
4-tert-Butoxystyrene homopolymer 174476-25-6P,
4-Acetoxystyrene-tert-butyl acrylate copolymer
291282-97-8DP, 4-tert-Butoxystyrene-acrylonitrile
copolymer, reaction products with di-tert-Bu carbonate
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP

KOROMA EIC1700

(**Preparation**); RACT (Reactant or reagent)
 (radiation-sensitive **chemical amplified** pos.-working
resist resin composition)

IT 34619-03-9DP, Di-tert-butyl carbonate, 4-tert-Butoxystyrene-
acrylonitrile copolymer 95418-60-3DP,
 4-tert-Butoxystyrene homopolymer, reaction products with di-tert-Bu
 carbonate 199432-81-0P 287381-51-5P 291282-95-6P 291282-96-7P
 RL: PNU (**Preparation**, unclassified); TEM (Technical or engineered material
 use); **PREP (Preparation)**; USES (Uses)
 (radiation-sensitive **chemical amplified** pos.-working
resist resin composition)

L26 ANSWER 45 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:493204 CAPLUS

DOCUMENT NUMBER: 133:112405

TITLE: Hydroxystyrene **copolymers** and
photoresists comprising same

INVENTOR(S): Pandya, Ashish; Sinta, Roger F.; Ito, Hiroshi

PATENT ASSIGNEE(S): Shipley Company LLC, USA; International Business
 Machines Corporation

SOURCE: Eur. Pat. Appl., 15 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1020768	A1	20000719	EP 1999-125638	19991222
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2000284483	A2	20001013	JP 2000-38851	20000112

PRIORITY APPLN. INFO.: US 1999-228694 A 19990112

AB The present invention relates to new **copolymers** and use of such
copolymer as a resin binder component for photoresist compns.,
 particularly **chemical-amplified** pos.-acting
resists. Polymers of the invention include repeat units of (1)
 meta-hydroxystyrene groups, (2) para-hydroxystyrene groups, and (3)
 photo-acid-labile groups.

IT **257288-16-7P**, p-Hydroxystyrene-m-hydroxystyrene-tert-butyl
acrylate copolymer
 RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered
 material use); **PREP (Preparation)**; USES (Uses)
 (hydroxystyrene **copolymer** in **photoresists** composition)

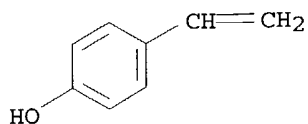
RN 257288-16-7 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 3-ethenylphenol
 and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

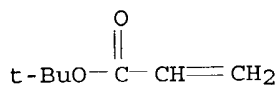
CMF C8 H8 O



CM 2

CRN 1663-39-4

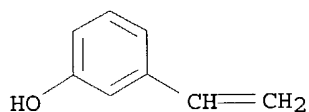
CMF C7 H12 O2



CM 3

CRN 620-18-8

CMF C8 H8 O



IC ICM G03F007-039

ICS C08F212-14; C08F012-24

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 76

ST hydroxystyrene copolymer photoresist binder

IT **Photoresists**

Semiconductor device fabrication

(hydroxystyrene copolymer in photoresists composition as binder)

IT **257288-16-7P**, p-Hydroxystyrene-m-hydroxystyrene-tert-butyl acrylate copolymer

RL: **SPN** (Synthetic preparation); **TEM** (Technical or engineered material use); **PREP** (Preparation); **USES** (Uses)

(hydroxystyrene copolymer in photoresists composition)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 46 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 2000:317214 CAPLUS
 DOCUMENT NUMBER: 132:341195
 TITLE: **Chemically amplified photoresist composition**
 INVENTOR(S): Choi, Sang Joon
 PATENT ASSIGNEE(S): Samsung Electronics Co., Ltd., S. Korea
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000137328	A2	20000516	JP 1999-307678	19991028
JP 3501988	B2	20040302		
KR 2000027737	A	20000515	KR 1998-45736	19981029
TW 422940	B	20010221	TW 1999-88100758	19990119
US 6114422	A	20000905	US 1999-313808	19990518
			KR 1998-45736	A 19981029

PRIORITY APPLN. INFO.:

AB The title **resist** composition comprises a photosensitive polymer of the formula $[\text{CH}_2\text{CH}(\text{C}_6\text{H}_4\text{OH-p})]_k[\text{CH}_2\text{CR}_1(\text{CO}_2(\text{CH}_2)_x\text{CH}(\text{CO}_2\text{R}_2)_2)]_l$ [I; $\text{R}_1 = \text{H}, \text{Me}$; $\text{R}_2 = \text{tert-Bu}, \text{tetrahydropyranyl}, 1\text{-alkoxyethyl}$; $x = 1\text{-}4$; $k/(k + 1) = 0.5\text{-}0.9$] and a photoacid generator 1-15 weight% of the polymer. The **resist** composition comprises a polymer blend of I and $[\text{CH}_2\text{CH}(\text{C}_6\text{H}_4\text{OH-p})]_m[\text{CH}_2\text{CH}(\text{C}_6\text{H}_4\text{OR}_3\text{-p})]_n$ [$\text{R}_3 = \text{tert-BU}, \text{tetrahydropyranyl}, 1\text{-alkoxyethyl}, \text{tert-butoxycarbonyl}$; $m/(m + n) = 0.5\text{-}0.9$] and a photoacid generator 1-15 weight% of the polymer blend. The composition provides a high contrast pattern showing good thermal characteristics.

IT **268550-94-3DP**, 4-Acetoxy styrene-di-tert-butylmalonylpropyl **acrylate copolymer**, hydrolyzed

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
 (photoresist composition containing **acrylic acid ester-hydroxystyrene copolymer** and acid generator)

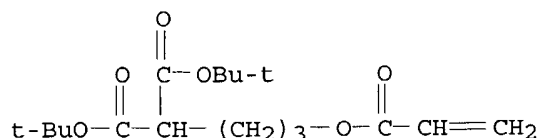
RN 268550-94-3 CAPLUS

CN Propanedioic acid, [3-[(1-oxo-2-propenyl)oxy]propyl]-, bis(1,1-dimethylethyl) ester, polymer with 4-ethenylphenyl acetate (9CI)
 (CA INDEX NAME)

CM 1

CRN 268550-93-2

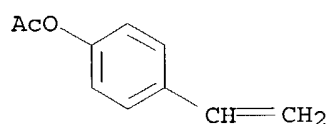
CMF C17 H28 O6



CM 2

CRN 2628-16-2

CMF C10 H10 O2



IC ICM G03F007-039
ICS C08F008-12; C08F212-14; C08L025-18; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

ST **chem amplification** photoresist hydroxystyrene **acrylate copolymer**; photoacid generator photoresist; polymer blend polyhydroxystyrene deriv photoresist

IT **Photoresists**
(**chemical amplification**-type photoresist containing **acrylate**-hydroxystyrene **copolymer** and photoacid generator)

IT Polymer blends
RL: TEM (Technical or engineered material use); USES (Uses)
(**chemical amplification**-type photoresist containing polymer blend of **acrylate**-hydroxystyrene **copolymer** and hydroxystyrene derivative polymer)

IT 102-71-6, uses 111-42-2, Diethanolamine, uses 121-44-8, uses 1116-40-1, Triisobutylamine
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(photoresist composition containing **acrylic acid ester**-hydroxystyrene **copolymer** and acid generator)

IT 109-92-2DP, Ethyl vinyl ether, ethers with polyhydroxystyrene 110-87-2DP, ethers with polyhydroxystyrene 59269-51-1DP, Poly(hydroxystyrene), ethers 155214-68-9P, Poly(hydroxystyrene) tert-butylcarbonate 268550-94-3DP, 4-Acetoxystyrene-di-tert-butylmalonylpropyl **acrylate copolymer**, hydrolyzed
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(photoresist composition containing **acrylic acid ester**-hydroxystyrene

copolymer and acid generator)
 IT 34684-40-7, N-Hydroxysuccinimide triflate 66003-78-9, Triphenylsulfonium triflate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (photoresist composition containing **acrylic** acid ester-hydroxystyrene **copolymer** and acid generator)
 IT 268550-93-2P
 RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP** (**Preparation**); RACT (Reactant or reagent)
 (preparation and polymerization of)
 IT 541-16-2, Di-tert-butyl malonate 4823-47-6, 2-Bromoethyl **acrylate**
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of butylmalonylpropyl **acrylate**)

L26 ANSWER 47 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:316980 CAPLUS

DOCUMENT NUMBER: 132:341190

TITLE: Photosensitive polymer for **chemically amplified resists** and **chemically amplified resist** composition containing same

INVENTOR(S): Choi, Sang Joon

PATENT ASSIGNEE(S): Samsung Electronics Co., Ltd., S. Korea

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000136219	A2	20000516	JP 1999-307677	19991028
TW 440746	B	20010616	TW 1999-88100759	19990119
US 6294630	B1	20010925	US 1999-372016	19990811
US 2002026022	A1	20020228	US 2001-915670	20010726
US 6515038	B2	20030204		

PRIORITY APPLN. INFO.: KR 1998-45737 A 19981029

US 1999-372016 A3 19990811

AB The title polymer has the general formula $[CH_2CR_1(CO_2(CH_2)_xCH(CO_2R_2)_2)]_l[C H_2CR_3(CO_2R_4)]_m[CH_2CR_5(C_6H_4OH-p)]_n$ [R1, R3, R5 = H, Me; R2 = tert-Bu, tetrahydropyranyl, 1-alkoxyethyl; R4 = H, Me, tert-Bu, tetrahydropyranyl, 1-alkoxyethyl; x = 1-4; $l/(l + m + n) = 0.1-0.5$; $m/(l + m + n) = 0.01-0.5$; $(l + m)/(l + m + n) = 0.1-0.7$]. The **resist** composition contains the polymer and a photoacid generator 1-15 weight% of the polymer. The polymer shows increased solubility difference prior to and after exposure, and hence the **resist** composition provides high contrast patterns.

IT 267899-93-4DP, hydrolyzed 267899-94-5DP, hydrolyzed
 267899-95-6DP, hydrolyzed

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP** (**Preparation**); USES (Uses)

(photoresist composition containing **acrylic** acid ester-hydroxystyrene **copolymer** and acid generator)

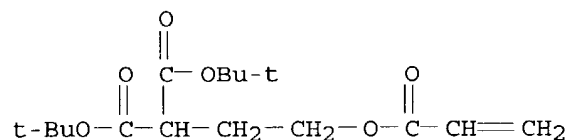
RN 267899-93-4 CAPLUS

CN Propanedioic acid, [2-[(1-oxo-2-propenyl)oxy]ethyl]-, bis(1,1-dimethylethyl) ester, polymer with 1,1-dimethylethyl 2-propenoate and 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 267899-92-3

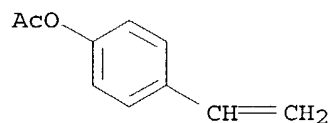
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CM 2

CRN 2628-16-2

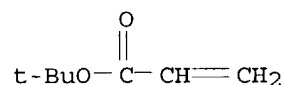
CMF C10 H10 O2



CM 3

CRN 1663-39-4

CMF C7 H12 O2



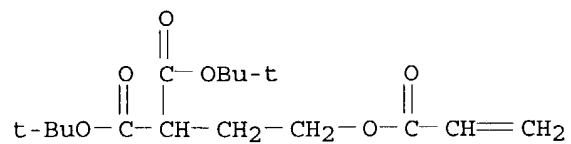
RN 267899-94-5 CAPLUS

CN Propanedioic acid, [2-[(1-oxo-2-propenyl)oxy]ethyl]-, bis(1,1-dimethylethyl) ester, polymer with 1,1-dimethylethyl 2-methyl-2-propenoate and 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 267899-92-3

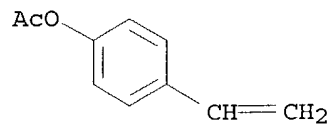
CMF C16 H26 O6



CM 2

CRN 2628-16-2

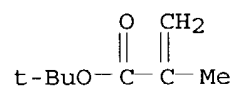
CMF C10 H10 O2



CM 3

CRN 585-07-9

CMF C8 H14 O2



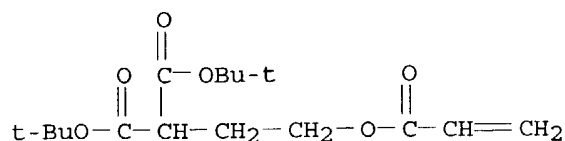
RN 267899-95-6 CAPLUS

CN Propanedioic acid, [2-[(1-oxo-2-propenyl)oxy]ethyl]-, bis(1,1-dimethylethyl) ester, polymer with 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 267899-92-3

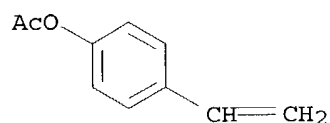
CMF C16 H26 O6



CM 2

CRN 2628-16-2

CMF C10 H10 O2



- IC ICM C08F220-28
ICS C08F008-12; C08L033-00; G03F007-004; G03F007-039; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
- ST **chem amplification** photoresist; malonylalkyl
acrylate copolymer photoresist; hydroxystyrene
acrylate copolymer photoresist; acid generator
photoresist
- IT **Photoresists**
(photoresist composition containing **acrylic acid ester-hydroxystyrene copolymer** and acid generator)
- IT 267899-93-4DP, hydrolyzed 267899-94-5DP, hydrolyzed
267899-95-6DP, hydrolyzed
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(photoresist composition containing **acrylic acid ester-hydroxystyrene copolymer** and acid generator)
- IT 66003-78-9, Triphenylsulfonium triflate
RL: TEM (Technical or engineered material use); USES (Uses)
(photoresist composition containing **acrylic acid ester-hydroxystyrene copolymer** and acid generator)
- IT 267899-92-3P
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(preparation and polymerization of)
- IT 541-16-2, Di-tert-butyl malonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of di-butylmalonylpropyl **acrylate**)
- IT 4823-47-6, 2-Bromoethyl **acrylate**
RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of dibutylmalonylpropyl acrylate)

L26 ANSWER 48 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:117258 CAPLUS

DOCUMENT NUMBER: 132:173395

TITLE: Radiation-sensitive composition for **chemically amplified photoresist**

INVENTOR(S): Pawlowski, Georg; Okazaki, Hiroshi; Kinoshita, Yoshiaki; Tsugama, Naoko; Hishida, Aritaka; Ma, Xiao-ming; Yamaguchi, Yuko

PATENT ASSIGNEE(S): Clariant International Ltd., Switz.

SOURCE: PCT Int. Appl., 133 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000008525	A1	20000217	WO 1999-JP4304	19990809
W: CN, JP, KR, SG, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1033624	A1	20000906	EP 1999-935116	19990809
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
US 6358665	B1	20020319	US 2000-529371	20000703
PRIORITY APPLN. INFO.:			JP 1998-225029	A 19980807
			JP 1999-87036	A 19990329
			WO 1999-JP4304	W 19990809

AB A **chemical amplification**-type radiation-sensitive composition comprising a film-forming resin based on a hydroxystyrene in combination with an onium salt precursor capable of generating a fluorinated alkanesulfonic acid as a radiation-sensitive acid-generating agent. This composition is free from the occurrence of corrosion of an apparatus owing to outgassing, the formation of a T-type pattern and the change of line width caused by a delay of processing time, and can be used for achieving a high sensitivity and resolving power and a good and stable pattern formation.

IT **155040-27-0P**, 4-Hydroxystyrene-tert-butyl methacrylate **copolymer** **174476-25-6DP**, 4-Acetoxystyrene-4-tert-butyl **acrylate copolymer**, hydrolyzed, reaction products with Et vinyl ether **258872-02-5P**, 4-Hydroxystyrene-4-tert-butyloxycarbonyloxystyrene-tert-butyl methacrylate **copolymer** **258872-15-0DP**, 4-Acetoxystyrene-styrene-tert-butyl methacrylate **copolymer**, reaction products with hydroxystyrene polymer derivative
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; **USES (Uses)**

(radiation-sensitive composition for **chemical amplified photoresist**)

RN 155040-27-0 CAPLUS

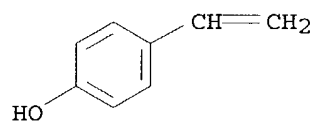
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with

4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

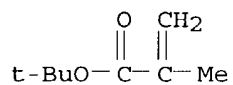
CMF C8 H8 O



CM 2

CRN 585-07-9

CMF C8 H14 O2



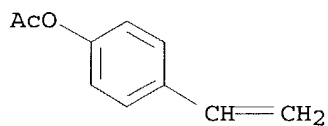
RN 174476-25-6 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 2628-16-2

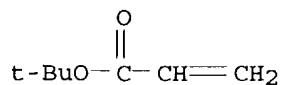
CMF C10 H10 O2



CM 2

CRN 1663-39-4

CMF C7 H12 O2



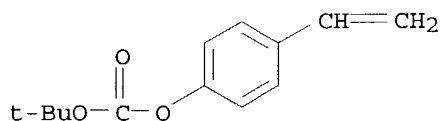
RN 258872-02-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
1,1-dimethylethyl 4-ethenylphenyl carbonate and 4-ethenylphenol (9CI) (CA
INDEX NAME)

CM 1

CRN 87188-51-0

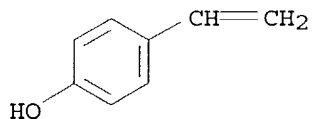
CMF C13 H16 O3



CM 2

CRN 2628-17-3

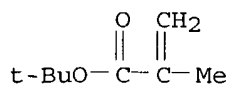
CMF C8 H8 O



CM 3

CRN 585-07-9

CMF C8 H14 O2



RN 258872-15-0 CAPLUS

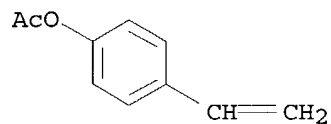
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
ethenylbenzene and 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

KOROMA EIC1700

CM 1

CRN 2628-16-2

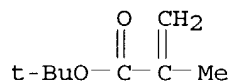
CMF C10 H10 O2



CM 2

CRN 585-07-9

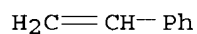
CMF C8 H14 O2



CM 3

CRN 100-42-5

CMF C8 H8



IT 258871-96-4, 4-Hydroxystyrene-styrene-tert-butyl methacrylate
copolymer

RL: TEM (Technical or engineered material use); USES (Uses)
(radiation-sensitive composition for **chemical amplified**
photoresist)

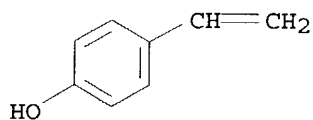
RN 258871-96-4 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

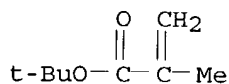
CMF C8 H8 O



CM 2

CRN 585-07-9

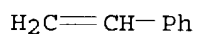
CMF C8 H14 O2



CM 3

CRN 100-42-5

CMF C8 H8



- IC ICM G03F007-004
- ICS G03F007-039; G03F007-038; C07C381-12; C07C309-06
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST radiation sensitive compn **chem amplification resist**
- IT **Photoresists**
(radiation-sensitive composition for **chemical amplified photoresist**)
- IT Onium compounds
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(radiation-sensitive composition for **chemical amplified photoresist**)
- IT 258871-80-6P, Tris(4-hydroxyphenyl)sulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate
RL: PNU (Preparation, unclassified); RCT (Reactant); **PREP (Preparation)**; RACT (Reactant or reagent)
(radiation-sensitive composition for **chemical amplified photoresist**)
- IT 76-05-1P, preparation 108-90-7P, Chlorobenzene, preparation 109-92-2DP, Ethylvinyl ether, reaction product with functionalized styrene polymer 110-75-8DP, 2-Chloroethylvinyl ether, reaction product with

4-hydroxystyrene homopolymer 536-80-1P, Iodosylbenzene 827-52-1P, Cyclohexylbenzene 2628-17-3P 5292-43-3DP, tert-Butylbromoacetate, reaction product with hydrolyzed 4-tert-Bu polymer 7758-05-6P, Potassium iodate 12124-97-9P, Ammonium bromide 18995-35-2P 24979-70-2DP, 4-Hydroxystyrene homopolymer, reaction product with functionalized vinyl compound 34619-03-9DP, Di-tert-butylcarbonate, reaction product with 4-hydroxystyrene homopolymer 68734-62-3P, Trimethylsilylnonafluorobutane sulfonate 94287-61-3P 129361-29-1P 130100-38-8P 133685-94-6P 135648-85-0P, 4-Hydroxystyrene-4-methoxystyrene **copolymer** 144317-44-2P, Triphenylsulfonium nonafluorobutanesulfonate **155040-27-0P**, 4-Hydroxystyrene-tert-butyl methacrylate **copolymer** 158401-89-9P **174476-25-6DP**, 4-Acetoxystyrene-4-tert-butyl **acrylate copolymer**, hydrolyzed, reaction products with Et vinyl ether 175610-67-0P 176747-00-5P, Diphenyliodonium 3,3,3,2,1,1-hexafluoropropanesulfonate 204065-67-8DP, 4-Hydroxystyrene-4-methylstyrene **copolymer**, reaction product with ethoxy vinyl ether 241806-75-7P, Tris(4-tert-butylphenyl)sulfonium nonafluorobutanesulfonate 258871-76-0P, Tris(4-tert-butylphenyl)sulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-78-2P, Tri(4-t-butoxyphenyl)sulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-81-7P, Tris(4-tert-butoxycarbonylmethoxyphenyl)sulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-83-9P, β -Oxocyclohexyl 2-norbornylmethyl sulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-84-0P, Bis(4-cyclohexylphenyl)iodonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-85-1P, 4-Methylphenylphenyliodonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-86-2P, Bis(4-tert-butoxyphenyl)phenylsulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-88-4P, Bis(4-methylphenyl)-4-cyclohexylphenylsulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-89-5P, Tris(4-chlorophenyl)sulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-90-8P, 4-Hydroxy-3,5-dimethylphenyldiphenylsulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-91-9P, Di(4-t-butyloxyphenyl)iodonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-94-2P, Di(4-tert-butylcarbonyloxymethyloxyphenyl)iodonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-95-3P, 4-tert-Butylphenylphenyliodonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258871-97-5P, 4-Hydroxystyrene-4-tetrahydropyranyloxystyrene- α,ω -triethyleneglycol divinyl ether **copolymer** 258871-99-7P, Tris(tert-butylcarbonylmethyloxyphenyl)sulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate 258872-01-4P, Bis(4-cyclohexylphenyl)phenylsulfonium 3,3,3,2,1,1-hexafluoropropanesulfonate **258872-02-5P**, 4-Hydroxystyrene-4-tert-butyloxycarbonyloxystyrene-tert-butyl methacrylate **copolymer** 258872-05-8P, Diphenyl 4-tert-butylphenylsulfonium nonafluorobutanesulfonate 258872-08-1P, Tris(4-butoxyphenyl)sulfonium nonafluorobutanesulfonate 258872-10-5P, Tris(4-tert-butoxycarbonylmethoxyphenyl)sulfonium nonafluorobutanesulfonate 258872-13-8P 258872-14-9P, Bis(4-cyclohexylphenyl)iodonium nonafluorobutylsulfonate **258872-15-0DP**, 4-Acetoxystyrene-styrene-tert-butyl methacrylate **copolymer**, reaction products with

hydroxystyrene polymer derivative 258873-04-0P, Bis(4-hydroxyphenyliodonium)
3,3,3,2,1,1-hexafluoropropanesulfonate

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
use); **PREP (Preparation)**; USES (Uses)

(radiation-sensitive composition for **chemical amplified**
photoresist)

IT 67-68-5, Dimethyl sulfoxide, reactions 71-43-2, Benzene, reactions
75-75-2, Methanesulfonic acid 107-59-5, tert-Butyl chloroacetate
357-31-3 375-73-5 507-19-7, tert-Butyl bromide 591-50-4, Iodobenzene
945-51-7, Diphenylsulfoxide 3085-42-5, 4,4'-Dichlorophenyl sulfoxide
5292-43-3, tert-Butylbromoacetate 29342-65-2, 2-Bromonorbornane
137455-55-1, Tris(4-tert-butoxyphenyl)sulfonium 170632-59-4,
Bis(4-tert-butoxyphenyl)sulfoxide 258872-06-9, Diphenyl
4-tert-butylphenylsulfonium bromide 258872-11-6, Tris-4(tert-
butoxyphenyl)sulfonium nonafluorobutanesulfonate 263871-53-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(radiation-sensitive composition for **chemical amplified**
photoresist)

IT 216679-67-3, Megafac R 08 **258871-96-4**, 4-Hydroxystyrene-styrene-
tert-butyl methacrylate **copolymer**

RL: TEM (Technical or engineered material use); USES (Uses)

(radiation-sensitive composition for **chemical amplified**
photoresist)

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 49 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1999:557773 CAPLUS

DOCUMENT NUMBER: 131:163395

TITLE: Method using photoresist composition and articles
produced therewith

INVENTOR(S): Cameron, James F.; Rajaratnam, Martha M.; Sinta, Roger
F.; Thackeray, James W.

PATENT ASSIGNEE(S): Shipley Company LLC, USA

SOURCE: Eur. Pat. Appl., 15 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 938029	A2	19990825	EP 1999-102241	19990204
EP 938029	A3	20000329		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO

US 6048672	A	20000411	US 1998-27127	19980220
JP 11282168	A2	19991015	JP 1999-43762	19990222

PRIORITY APPLN. INFO.: US 1998-27127 19980220

AB The invention includes use of a pos. **chemical amplified**
photoresist composition that produces a strong photogenerated acid. The

photoresist is coated onto a metal substrate that has been subjected to a stringent bake step, e.g. heating of the substrate at about at least 140° for more than 60 s. The combined use of a strong photogenerated acid and a stringent pre-coating substrate bake provides highly resolved relief **resist** images, including on metal substrates.

IT 159296-87-4, tert-Butyl **acrylate**-4-hydroxystyrene
copolymer 200808-68-0, tert-Butyl **acrylate**
-4-hydroxystyrene-styrene **copolymer**

RL: TEM (Technical or engineered material use); USES (Uses)
(pos. **chemical amplified photoresists** containing
photoacid generators and)

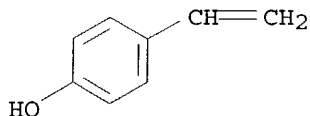
RN 159296-87-4 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol
(9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

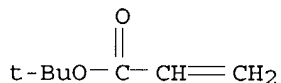
CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



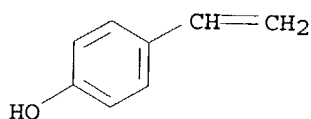
RN 200808-68-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with ethenylbenzene and
4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

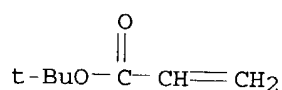
CMF C8 H8 O



CM 2

CRN 1663-39-4

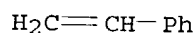
CMF C7 H12 O2



CM 3

CRN 100-42-5

CMF C8 H8



IC ICM G03F007-16

ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST pos **chem amplified** photoresist photogenerated acid

IT Silicate glasses

RL: TEM (Technical or engineered material use); USES (Uses)
(Boron phosphorus; highly resolved relief **resist** image formation using pos. **chemical amplified photoresists** coated on baked substrates of)

IT Positive **photoresists**
(**chemical amplified**; with strong photogenerated acids and coated on baked metal substrates)

IT 78-10-4, TEOS 11105-01-4, Silicon oxynitride 12033-89-5, Silicon nitride, uses 25583-20-4, Titanium nitride

RL: TEM (Technical or engineered material use); USES (Uses)
(highly resolved relief **resist** image formation using pos. **chemical amplified photoresists** coated on baked substrates of)

IT 24979-70-2D, Poly(4-hydroxystyrene), hydrogenated, modified with tert-Bu acetate 159296-87-4, tert-Butyl acrylate -4-hydroxystyrene copolymer 200808-68-0, tert-Butyl acrylate-4-hydroxystyrene-styrene copolymer

RL: TEM (Technical or engineered material use); USES (Uses)
(pos. **chemical amplified photoresists** containing
photoacid generators and)

IT 144089-15-6P 213740-80-8P 229326-00-5P, N-
[(Perfluorooctanesulfonyl)oxy]-5-norbornene-2,3-dicarboximide
RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered
material use); **PREP (Preparation)**; USES (Uses)
(preparation and use as photoacid generator for pos. **chemical
amplified photoresists**)

IT 98-06-6, tert-Butylbenzene 108-24-7, Acetic anhydride 307-35-7,
Perfluorooctanesulfonyl fluoride 2795-39-3, Potassium
perfluorooctanesulfonate 3353-89-7, Triphenylsulfonium bromide
7758-05-6, Potassium iodate 21715-90-2, N-Hydroxy-5-norbornene-2,3-
dicarboximide
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT
(Reactant or reagent); USES (Uses)
(reaction in preparation of photoacid generator for pos. **chemical
amplified photoresists**)

L26 ANSWER 50 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:513131 CAPLUS
DOCUMENT NUMBER: 131:293195
TITLE: Novel dissolution inhibitors based on calixarene
derivatives for use in **chemical
amplification resists**

AUTHOR(S): Ito, Hiroshi; Nakayama, Tomonari; Ueda, Mitsuru;
Sherwood, Mark; Miller, Dolores
CORPORATE SOURCE: IBM Almaden Research Center, San Jose, CA, 95120, USA
SOURCE: Polymeric Materials Science and Engineering (1999),
81, 51-52
CODEN: PMSE DG; ISSN: 0743-0515
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

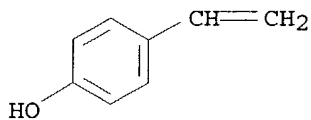
AB Calix[4]resorcinarenes were synthesized by condensing resorcinol with
aldehydes (acetaldehyde, benzaldehyde, and 4-isopropylbenzaldehyde) and
separated into C4v and C2v, isomers. All eight OH groups were protected with
acid-labile groups such as tBOC and tBuOCOCH₂. The protected calixarenes
have been found to be excellent dissoln. inhibitors for use in
chemical amplification resists.

IT 159296-87-4, 4-Hydroxystyrene-tert-butyl **acrylate
copolymer**
RL: PEP (Physical, engineering or chemical process); TEM (Technical or
engineered material use); PROC (Process); USES (Uses)
(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in
chemical amplification resists)

RN 159296-87-4 CAPLUS
CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol
(9CI) (CA INDEX NAME)

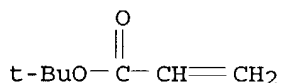
CM 1

CRN 2628-17-3
CMF C8 H8 O



CM 2

CRN 1663-39-4
CMF C7 H12 O2



- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 76
- ST dissoln inhibitor calixarene **chem amplification**
photoresist
- IT Photolithography
Photoresists
Semiconductor device fabrication
(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in **chemical amplification resists**)
- IT Dendritic polymers
RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM
(Technical or engineered material use); **PREP (Preparation)**; USES
(Uses)
(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in **chemical amplification resists**)
- IT 159296-87-4, 4-Hydroxystyrene-tert-butyl **acrylate**
copolymer
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in **chemical amplification resists**)
- IT 74410-61-0DP, t-butoxycarbonyl- or t-butoxycabonylmethyl-protected
145843-14-7DP, t-butoxycarbonyl- or t-butoxycabonylmethyl-protected
246023-01-8P 246023-03-0P 246023-04-1DP, t-butoxycarbonyl- or
t-butoxycabonylmethyl-protected 246023-06-3P 246024-56-6DP,
t-butoxycarbonyl- or t-butoxycabonylmethyl-protected
RL: PRP (Properties); **SPN (Synthetic preparation)**; TEM
(Technical or engineered material use); **PREP (Preparation)**; USES
(Uses)

(novel dissoln. inhibitors based on calix[4]resorcinarenes for use in **chemical amplification resists**)

IT 75-07-0, Acetaldehyde, reactions 100-52-7, Benzaldehyde, reactions
108-46-3, Resorcinol, reactions 122-03-2, 4-Isopropylbenzaldehyde
5292-43-3, tert-Butyl bromoacetate 24424-99-5, Di-tert-butyl dicarbonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of novel dissoln. inhibitors based on calix[4]resorcinarenes
for use in **chemical amplification resists**)

IT 74410-61-0P 74708-10-4P 145843-14-7DP, t-butoxycarbonyl- or
t-butoxycabonylmethyl-protected 246023-04-1P 246023-05-2P
246024-56-6P
RL: RCT (Reactant); **SPN (Synthetic preparation); PREP**
(Preparation); RACT (Reactant or reagent)
(preparation of novel dissoln. inhibitors based on calix[4]resorcinarenes
for use in **chemical amplification resists**)

REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

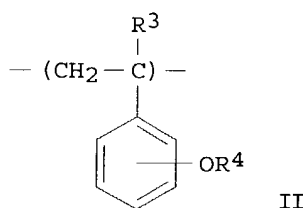
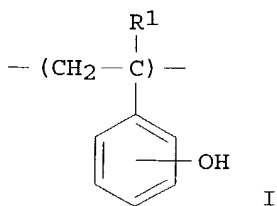
L26 ANSWER 51 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:182705 CAPLUS
DOCUMENT NUMBER: 130:259554
TITLE: Radiation-sensitive resin composition useful as
chemically amplified
positive-working resist

INVENTOR(S): Kobayashi, Eiichi; Yokoyama, Kenichi; Tanabe, Takaki;
Iwanaga, Shinichiro
PATENT ASSIGNEE(S): JSR Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11072920	A2	19990316	JP 1997-244856	19970827
PRIORITY APPLN. INFO.:			JP 1997-244856	19970827

GI



AB The title resin composition contains (a) a **copolymer** having repeating

units I, $\text{CH}_2\text{CR}_2(\text{CO}_2\text{CMe}_3)$, and II ($\text{R}_1\text{-R}_3 = \text{H or Me}$; $\text{R}_4 = \text{C}_4\text{-10 tert-alkyl}$), (b) a radiation-sensitive acid-generator, and (c) an acid diffusion-controlling agent. The composition shows high sensitivity toward various kinds of radiations and processability in dark field and provides high resolution patterns with good profile.

IT 221524-18-1DP, p-Acetoxystyrene-p-tert-butoxystyrene-tert-butyl acrylate copolymer, hydrolyzed 221524-20-5P, p-tert-Butoxystyrene-tert-butyl methacrylate-m-hydroxystyrene copolymer

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(photoresist composition containing hydroxystyrene derivative polymer, acid generator, and acid diffusion-controlling agent)

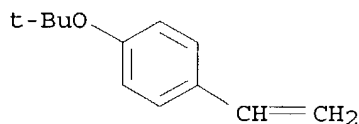
RN 221524-18-1 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 95418-58-9

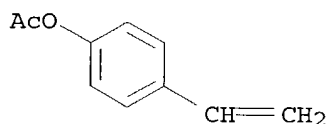
CMF C12 H16 O



CM 2

CRN 2628-16-2

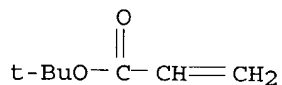
CMF C10 H10 O2



CM 3

CRN 1663-39-4

CMF C7 H12 O2



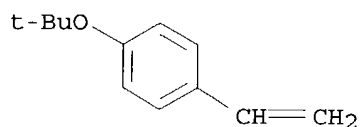
RN 221524-20-5 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with
1-(1,1-dimethylethoxy)-4-ethenylbenzene and 3-ethenylphenol (9CI) (CA
INDEX NAME)

CM 1

CRN 95418-58-9

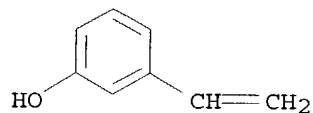
CMF C12 H16 O



CM 2

CRN 620-18-8

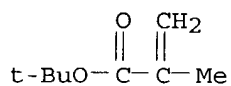
CMF C8 H8 O



CM 3

CRN 585-07-9

CMF C8 H14 O2



IC ICM G03F007-039

ICS G03F007-004; G03F007-033; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

KOROMA EIC1700

Section cross-reference(s): 38

ST photoresist hydroxystyrene deriv polymer; acid generator photoresist;
diffusion controlling agent acid photoresistIT **Photoresists**(photoresist composition containing hydroxystyrene derivative polymer, acid
generator, and acid diffusion-controlling agent)

IT 102-86-3, Trihexylamine

RL: TEM (Technical or engineered material use); USES (Uses)

(acid diffusion-controlling agent; photoresist composition containing
hydroxystyrene derivative polymer, acid generator, and acid
diffusion-controlling agent)IT **221524-18-1DP, p-Acetoxystyrene-p-tert-butoxystyrene-tert-butyl
acrylate copolymer, hydrolyzed 221524-20-5P,
p-tert-Butoxystyrene-tert-butyl methacrylate-m-hydroxystyrene
copolymer**RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
use); **PREP (Preparation)**; USES (Uses)(photoresist composition containing hydroxystyrene derivative polymer, acid
generator, and acid diffusion-controlling agent)IT 142342-33-4, Bis(4-tert-butylphenyl)iodonium p-toluenesulfonate
144317-44-2, Triphenylsulfonium nonafluorobutanesulfonate 194999-85-4,
Bis(4-tert-butylphenyl)iodonium nonafluorobutanesulfonate 195723-94-5,
4-tert-Butoxyphenyl diphenyl sulfonium 10-camphorsulfonate 214534-44-8,
Diphenyliodonium 10-camphorsulfonate 220535-23-9

RL: TEM (Technical or engineered material use); USES (Uses)

(photoresist composition containing hydroxystyrene derivative polymer, acid
generator, and acid diffusion-controlling agent)

L26 ANSWER 52 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1998:795188 CAPLUS

DOCUMENT NUMBER: 130:45293

TITLE: Composition for antireflection or light absorption
film and compounds for use in sameINVENTOR(S): Padmanaban, Munirathna; Kang, Wen-bing; Tanaka,
Hatsuyuki; Kimura, Ken; Pawlowski, Georg

PATENT ASSIGNEE(S): Clariant International Ltd., Switz.

SOURCE: PCT Int. Appl., 65 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9854619	A1	19981203	WO 1998-JP2234	19980521
W: CN, JP, KR, SG, US				
RW: DE, FR, GB, IT				
TW 473653	B	20020121	TW 1998-87107647	19980518
EP 917002	A1	19990519	EP 1998-921751	19980521
R: DE, FR, GB, IT				
KR 2000029602	A	20000525	KR 1999-700666	19990126

PRIORITY APPLN. INFO.:

JP 1997-137088 A 19970527
WO 1998-JP2234 W 19980521

AB A composition capable of forming an antireflection or light absorption film which satisfactorily absorbs radiations having wavelengths of 100 to 450 nm, is free from the diffusion of a photo-generated acid into the film or the intermixing of a **resist** with the film, and is excellent in storage stability and step coverage properties; and novel compds. and novel polymers useful for the composition The composition contains a compound which

is a (meth)**acrylic** monomer or polymer having at least one isocyanate or thioisocyanate group bonded to a side chain thereof through an alkylene group, etc., or contains the compound or polymer which has an aminated or hydroxylated organic chromophore which absorbs light in the wavelength region of 100 to 450 nm and is bonded to the isocyanate or thioisocyanate group. The composition is applied to a substrate and baked to form a film serving as, e.g., an antireflection film. A **chemical-amplification-type resist** is applied to this film, and the **resist** film is exposed to light and then developed to form a **resist** image with high resolution Due to the presence of the isocyanate or thioisocyanate group in the compound, the film serving as, e.g., an antireflection film is cured through crosslinking during baking. Due to the presence of the organic chromophore, the film absorbs exposure light in the wavelength region of 100 to 450 nm.

IT 216989-13-8P, 9-Anthracene methacrylate-2-(methacryloyloxy)ethylisocyanate **copolymer**

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(composition for antireflection or light absorption film)

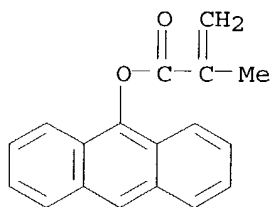
RN 216989-13-8 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 9-anthracenyl ester, polymer with 2-isocyanatoethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 32468-70-5

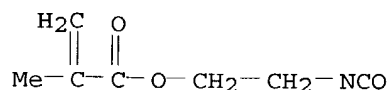
CMF C18 H14 O2



CM 2

CRN 30674-80-7

CMF C7 H9 N O3



- IC ICM G03F007-11
ICS C08F020-34; C08F020-38; C08F020-10; C08F022-04; C08F022-40;
H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)
Section cross-reference(s): 76
- ST antireflection light absorption film compn
- IT Antireflective films
Photolithography
Photoresists
Semiconductor materials
(composition for antireflection or light absorption film and compds. for use
in same)
- IT 88007-27-6DP, reaction product with 1-aminoanthracene 100042-81-7DP,
2-Methacryloyloxyethylisocyanate-methylmethacrylate **copolymer**,
reaction product with 1-aminoanthracene 216989-11-6P,
2-(Methacryloyloxy)ethyl isocyanate-maleic acid **copolymer**
RL: DEV (Device component use); PNU (Preparation, unclassified); **PREP**
(**Preparation**); USES (Uses)
(composition for antireflection or light absorption film)
- IT 216989-12-7P, N-(2-Methacryloyloxyethyl)-9-methylanthracene
carbamate-2-methacryloxyethyl acetate **copolymer**
216989-13-8P, 9-Anthracene methacrylate-2-
(methacryloyloxy)ethylisocyanate **copolymer** 216989-14-9P,
N-(2-Methacryloyloxyethyl)-9-methylanthracene carbamate-methyl
methacrylate-methacryloxyethyl isocyanate **copolymer**
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
use); **PREP (Preparation)**; USES (Uses)
(composition for antireflection or light absorption film)
- IT 62-53-3D, Aniline, reaction product with poly(2-
methacryloyloxyethylisocyanate) 63-74-1D, 4-Aminobenzenesulfonamide,
reaction product with poly(2-methacryloyloxyethylisocyanate) 90-15-3D,
1-Hydroxynaphthalene, reaction product with poly(2-
methacryloyloxyethylisocyanate) 95-03-4D, 2-Amino-4-chloroanisole,
reaction product with poly(2-methacryloyloxyethylisocyanate) 108-95-2D,
Phenol, reaction product with poly(2-methacryloyloxyethylisocyanate),
reactions 134-32-7D, 1-Aminonaphthalene, reaction product with
poly(2-methacryloyloxyethylisocyanate) 610-49-1D, 1-Aminoanthracene,
reaction product with poly(2-methacryloyloxyethylisocyanate) 708-06-5D,
2-Hydroxynaphthaldehyde, reaction product with poly(2-
methacryloyloxyethylisocyanate) 782-45-6D, 4-Aminobenzanilide, reaction
product with poly(2-methacryloyloxyethylisocyanate) 1468-95-7D,
9-Hydroxymethylanthracene, reaction product with poly(2-
methacryloyloxyethylisocyanate) 1576-43-8D, 4-Hydroxybenzenesulfonamide,
reaction product with poly(2-methacryloyloxyethylisocyanate) 1689-82-3D,

4-Hydroxyazobenzene, reaction product with poly(2-methacryloyloxyethylisocyanate) 3743-23-5D, 2-Hydroxy-4-chloroanisole, reaction product with poly(2-methacryloyloxyethylisocyanate) 6373-73-5D, reaction product with poly(2-methacryloyloxyethylisocyanate) 14121-97-2D, 4-Hydroxybenzanilide, reaction product with poly(2-methacryloyloxyethylisocyanate)

RL: RCT (Reactant); RACT (Reactant or reagent)

(composition for antireflection or light absorption film)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L26 ANSWER 53 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1997:682070 CAPLUS

DOCUMENT NUMBER: 128:8767

TITLE: **Chemical amplification and positive-working type resist laminate for manufacturing semiconductors and patterning using same**
INVENTOR(S): Takahashi, Shinichi; Abe, Nobunori; Oikawa, Akira; Miyata, Shuichi

PATENT ASSIGNEE(S): Nippon Zeon Co., Ltd., Japan; Fujitsu Ltd.

SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09269597	A2	19971014	JP 1996-77274	19960329
PRIORITY APPLN. INFO.:			JP 1996-77274	19960329

AB The **resist** laminate comprises a reflection-reducing layer on a layer with a highly reflective surface, and a photoresist layer containing a compound with an acid unstable tertiary amyl group. The **resist** laminate can be exposed by a laser radiation beam.

IT **155040-27-0P**, tert-Butyl methacrylate-p-vinylphenol **copolymer 180483-44-7P**, tert-Amyl methacrylate-p-vinylphenol **copolymer 198784-52-0P**, tert-Amyl **acrylate-p-vinylphenol copolymer**

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; **USES (Uses)**

(prepared as acid unstable compound for **resist** laminate for manufacturing semiconductors)

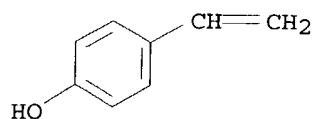
RN 155040-27-0 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

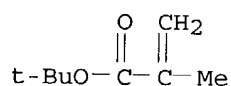
CMF C8 H8 O



CM 2

CRN 585-07-9

CMF C8 H14 O2



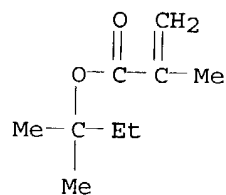
RN 180483-44-7 CAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylpropyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 7383-24-6

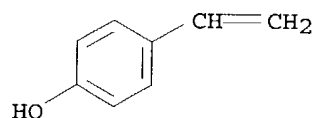
CMF C9 H16 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



RN 198784-52-0 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylpropyl ester, polymer with 4-ethenylphenol

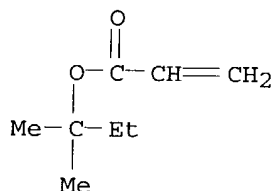
KOROMA EIC1700

(9CI) (CA INDEX NAME)

CM 1

CRN 7383-26-8

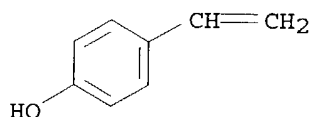
CMF C8 H14 O2



CM 2

CRN 2628-17-3

CMF C8 H8 O



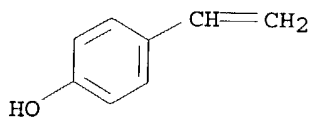
- IC ICM G03F007-039
 ICS G03F007-004; G03F007-11; G03F007-30; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 76
- ST **chem amplification pos working resist**
 laminate; acid unstable tertiary amyl **resist** laminate;
 semiconductor patterning photoresist laminate
- IT **Positive photoresists**
 (laminate; having reflection-reducing layer and photoresist layer
 containing acid unstable compound for manufacturing semiconductors and
 patterning
 using same)
- IT Semiconductor materials
 (photoresist laminate having reflection-reducing layer and photoresist
 layer containing acid unstable compound for manufacture of)
- IT **155040-27-0P**, tert-Butyl methacrylate-p-vinylphenol
copolymer 180483-44-7P, tert-Amyl methacrylate-p-
 vinylphenol **copolymer 198784-52-0P**, tert-Amyl
acrylate-p-vinylphenol copolymer 198784-54-2P
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
 use); **PREP (Preparation)**; **USES (Uses)**
 (prepared as acid unstable compound for **resist** laminate for

manufacturing semiconductors)

L26 ANSWER 54 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
 ACCESSION NUMBER: 1997:532269 CAPLUS
 DOCUMENT NUMBER: 127:128715
 TITLE: **Chemical amplification-type**
 positive-working radiation-sensitive **resist**
 composition
 INVENTOR(S): Suzuki, Masamutsu; Sakurai, Akihiko; Tanabe,
 Takayoshi; Isamoto, Yoshitsugu
 PATENT ASSIGNEE(S): Japan Synthetic Rubber Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09160244	A2	19970620	JP 1995-314061	19951201
JP 3345869	B2	20021118		
JP 2000066405	A2	20000303	JP 1999-228833	19990812
JP 3345881	B2	20021118		

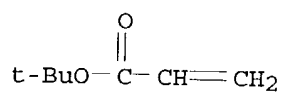
PRIORITY APPLN. INFO.: JP 1995-314061 A3 19951201
 AB The composition contains a polymer having a t-Bu group decomposable by an acid, a polymer having an acetal- or ketal group decomposable by an acid, and a radiation-sensitive acid-generating agent. The composition gives a pattern with high resolution, and is useful for fabrication of such as integrated circuits. Thus, a **resist** composition containing poly(p-hydroxystyrene) whose H (in OH group) is partially substituted with t-butoxycarbonylmethyl group or 1-ethoxyethyl group, N-(trifluoromethylsulfonyloxy)bicyclo-[2,2,1]hepto-5-en-2,3-dicarboxyimide, and nicotinamide irradiated with an electron beam showed sensitivity 12 $\mu\text{C}/\text{cm}^2$ to give 0.10 μm pattern.
 IT **159296-87-4P**, tert-Butyl **acrylate**-p-hydroxystyrene **copolymer 168274-87-1P**, tert-Butyl **acrylate** -p-isopropenylphenol **copolymer**
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
 (in **chemical amplification**-type pos.-working radiation-sensitive **resist** composition)
 RN 159296-87-4 CAPLUS
 CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)
 CM 1
 CRN 2628-17-3
 CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



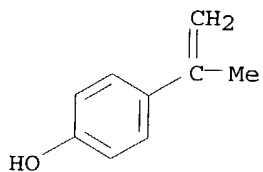
RN 168274-87-1 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with
4-(1-methylethenyl)phenol (9CI) (CA INDEX NAME)

CM 1

CRN 4286-23-1

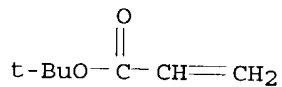
CMF C9 H10 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



IC ICM G03F007-039

ICS G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other

KOROMA EIC1700

Reprographic Processes)
Section cross-reference(s): 76
ST radiation sensitive **resist chem amplified**;
integrated circuit manuf radiation sensitive **resist**; acetal
polymer **resist** radiation sensitive; ketal polymer **resist**
radiation sensitive
IT Electron beam **resists**
Ion beam **resists**
Photoresists
X-ray resists
(**chemical amplification**-type pos.-working
radiation-sensitive **resist** composition)
IT 24979-70-2DP, Poly(p-hydroxystyrene), H (in OH group)-substituted
123589-22-0P **159296-87-4P**, tert-Butyl **acrylate**
-p-hydroxystyrene **copolymer 168274-87-1P**, tert-Butyl
acrylate-p-isopropenylphenol **copolymer 182930-98-9P**
192802-38-3P
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
use); **PREP** (Preparation); **USES** (Uses)
(in **chemical amplification**-type pos.-working
radiation-sensitive **resist** composition)
IT 107-25-5, Methyl vinyl ether 109-92-2 116-11-0 931-57-7,
1-Methoxycyclohexene 1191-99-7, 2,3-Dihydrofuran 5292-43-3, tert-Butyl
bromoacetate 17327-22-9, 4-Methoxy-5,6-dihydro-2H-pyran 24424-99-5,
Di-tert-butyl dicarbonate
RL: RCT (Reactant); **RAC** (Reactant or reagent)
(in preparation of substituted poly(p-hydroxystyrene) in **chemical**
amplification-type pos.-working radiation-sensitive
resist composition)

L26 ANSWER 55 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:523263 CAPLUS
DOCUMENT NUMBER: 127:240860
TITLE: Environmentally stable **chemically**
amplified positive **resist** containing
vinyl lactam terpolymers
AUTHOR(S): Bok, Cheol-Kyu; Koh, Cha-Won; Jung, Min-Ho; Baik,
Ki-Ho; Kim, Jin-Baek; Cheong, Jong-Ho
CORPORATE SOURCE: Memory R&D Div., Hyundai Electronics Industries Co.,
Ltd., Kyongki-do, 467-701, S. Korea
SOURCE: Proceedings of SPIE-The International Society for
Optical Engineering (1997), 3049(Advances in Resist
Technology and Processing XIV), 501-511
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In this paper we report here on lithog. performance of high resolution,
environmentally stable and aqueous base developable pos. tone **resist**
for deep-UV lithog. There have been a lot of efforts to prevent the
resist from suffering from the deactivation of acid during the
delay time between exposure and post exposure bake (PEB). The new design

of matrix resin containing amide functional group has advantages over current lithog. techniques. The effect of amide functional group as a basic additive in a **chemical amplified resist** was investigated. A new class of matrix resin containing amide functional group, poly(hydroxystyrene-tert-Bu **acrylate**-3-(tert-butoxycarbonyl)-1-vinyl-2-caprolactam), was developed. It showed 0.20 μ m lines/spaces patterns of this **resist** using KrF excimer stepper (NA 0.55, partial coherence factor 0.55) with a exposure dose of 25 mJ/cm². This **resist** showed no change of pattern profile after 2 h post exposure delay in which ammonia concentration is 5 ppb.

3-(Tert-butoxycarbonyl)-1-vinyl-2-caprolactam (BCVC) unit as a basic additive can not only solve amine contamination effectively, but also improve the resolution of the **resist**. BCVC unit reduces the diffusion of acid and it results in sharp contrast at the interface between the exposed and unexposed areas. Therefore, adding BCVC unit in matrix resin leads to the stabilization of the pattern profile and higher resolution

IT 194992-03-5P, Tert-Butyl **acrylate**; p-acetoxystyrene;
3-(tert-butoxycarbonyl)-1-vinyl-2-caprolactam **copolymer**
RL: **SPN** (Synthetic preparation); TEM (Technical or engineered material use); **PREP** (Preparation); USES (Uses)
(environmentally stable **chemical amplified** pos.
photoresist containing vinylactam terpolymers)

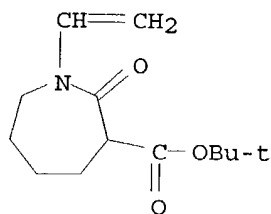
RN 194992-03-5 CAPLUS

CN 1H-Azepine-3-carboxylic acid, 1-ethenylhexahydro-2-oxo-, 1,1-dimethylethyl ester, polymer with 1,1-dimethylethyl 2-propenoate and 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 188172-95-4

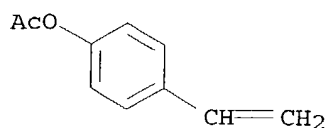
CMF C13 H21 N O3



CM 2

CRN 2628-16-2

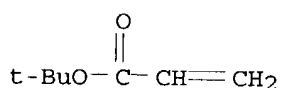
CMF C10 H10 O2



CM 3

CRN 1663-39-4

CMF C7 H12 O2



- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST lithog **chem amplified** pos photoresist terpolymer; butoxycarbonylvinylcaprolactam hydroxystyrene **acrylate** polymer photoresist
- IT Positive photoresists
(**chemical amplified**; environmentally stable **chemical amplified** pos. **resist** containing vinyl lactam terpolymers)
- IT Spectra
(environmentally stable **chemical amplified** pos. photoresist containing vinyl lactam terpolymers)
- IT 194992-03-5DP, hydrolyzed 194992-03-5P, Tert-Butyl **acrylate**; p-acetoxystyrene; 3-(tert-butoxycarbonyl)-1-vinyl-2-caprolactam **copolymer** 194992-04-6P
RL: **SPN** (**Synthetic preparation**); TEM (Technical or engineered material use); **PREP** (**Preparation**); **USES** (Uses)
(environmentally stable **chemical amplified** pos. photoresist containing vinyl lactam terpolymers)
- IT 57840-38-7, Triphenylsulfonium hexafluoroantimonate
RL: TEM (Technical or engineered material use); **USES** (Uses)
(environmentally stable **chemical amplified** pos. **resist** containing vinyl lactam terpolymers)
- IT 188172-95-4P
RL: RCT (Reactant); **SPN** (**Synthetic preparation**); **PREP** (**Preparation**); RACT (Reactant or reagent)
(polymerization in preparation of **chemical amplified** pos. **resist** containing vinyl lactam terpolymers)
- IT 105-60-2, Caprolactam, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with acetylene)
- IT 74-86-2, Acetylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with caprolactam)

IT 2235-00-9P, N-Vinylcaprolactam
 RL: RCT (Reactant); **SPN (Synthetic preparation)**; **PREP (Preparation)**; RACT (Reactant or reagent)
 (reaction with di-tert-butylidicarbonate)

IT 24424-99-5, Di-tert-butylidicarbonate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with vinylcaprolactam)

L26 ANSWER 56 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1997:471408 CAPLUS

DOCUMENT NUMBER: 127:227300

TITLE: **Chemically amplified resists** containing vinylactam derivatives

AUTHOR(S): Kim, Jin-Baek; Jung, Min-Ho; Cheong, Jong-Ho; Kim, Jae-Young; Bok, Cheol-Kyu; Koh, Cha-Won; Baik, Ki-Ho

CORPORATE SOURCE: Dep. Advanced Materials Eng., Korea Advanced Inst. Sci. Technol., Seoul, 130-650, S. Korea

SOURCE: Journal of Photopolymer Science and Technology (1997), 10(3), 493-502
 CODEN: JSTEEW; ISSN: 0914-9244

PUBLISHER: Technical Association of Photopolymers, Japan

DOCUMENT TYPE: Journal

LANGUAGE: English

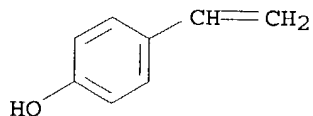
AB A new environmentally stable pos. tone deep UV **resist** has been designed by incorporating basic units into a matrix polymer for stabilization toward airborne contaminants. Poly(3-(t-butoxycarbonyl)-1-vinylcaprolactam) (poly(BCVC)), and poly(3-(t-butoxycarbonyl)-1-vinylcaprolactam-co-t-Bu **acrylate**-co-hydroxystyrene) (poly(BCVC-co-TBA-co-HOST)) were prepared and evaluated as potential deep UV **photoresists**. 0.2 μ M line/space patterns were obtained for these **resist** systems using a KrF excimer stepper (NA 0.55) with a dose of 25 mJ/cm². And these **resists** did not change pattern profile after 2 h post exposure delay (PED) time in which ammonia concentration was 5 ppb. 3-(T-Butoxycabonyl)-1-vinyl-2-caprolactam (BCVC) unit as a basic moiety can not only solve the amine contamination problem effectively, but also improve the resolution of the **resists**. BCVC unit reduces the diffusion of acid and it results in sharp contrast at the interface between the exposed and unexposed areas. Therefore, adding BCVC unit in matrix polymer leads to the stabilization of the pattern profile and higher resolution

IT 159296-87-4P, tert-Butyl **acrylate**-p-hydroxystyrene copolymer 174476-25-6P, p-Acetoxystyrene-tert-Butyl **acrylate** copolymer 194992-03-5P, 3-(t-Butoxycarbonyl)-1-vinylcaprolactam-tert-butyl **acrylate** -p-acetoxystyrene copolymer 194992-04-6P, 3-(t-Butoxycarbonyl)-1-vinylcaprolactam-tert-butyl **acrylate** -p-hydroxystyrene copolymer
 RL: **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; **USES (Uses)**
 (chemical amplified resists containing vinylactam derivs.)

RN 159296-87-4 CAPLUS
CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol
(9CI) (CA INDEX NAME)

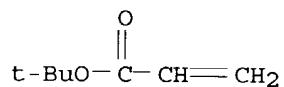
CM 1

CRN 2628-17-3
CMF C8 H8 O



CM 2

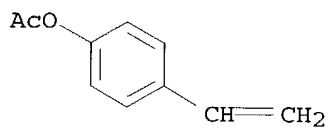
CRN 1663-39-4
CMF C7 H12 O2



RN 174476-25-6 CAPLUS
CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenyl
acetate (9CI) (CA INDEX NAME)

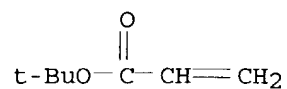
CM 1

CRN 2628-16-2
CMF C10 H10 O2



CM 2

CRN 1663-39-4
CMF C7 H12 O2



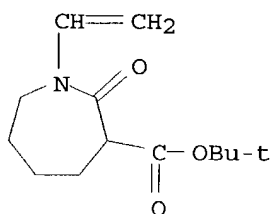
RN 194992-03-5 CAPLUS

CN 1H-Azepine-3-carboxylic acid, 1-ethenylhexahydro-2-oxo-, 1,1-dimethylethyl ester, polymer with 1,1-dimethylethyl 2-propenoate and 4-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 188172-95-4

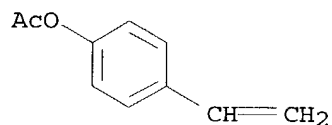
CMF C13 H21 N O3



CM 2

CRN 2628-16-2

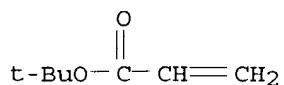
CMF C10 H10 O2



CM 3

CRN 1663-39-4

CMF C7 H12 O2



RN 194992-04-6 CAPLUS

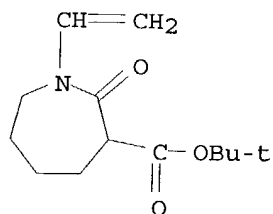
KOROMA EIC1700

CM 1H-Azepine-3-carboxylic acid, 1-ethenylhexahydro-2-oxo-, 1,1-dimethylethyl ester, polymer with 1,1-dimethylethyl 2-propenoate and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 188172-95-4

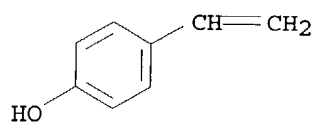
CMF C13 H21 N O3



CM 2

CRN 2628-17-3

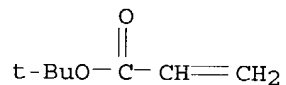
CMF C8 H8 O



CM 3

CRN 1663-39-4

CMF C7 H12 O2



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

ST **chem amplified resist** photoresist
vinyl lactam

IT **Photoresists**
(UV; **chemical amplified resists** containing
vinyl lactam derivs.)

- IT Thermal analysis
(**chemical amplified resists** containing
vinyl lactam derivs.)
- IT Polymerization
(radical; preparation of **chemical amplified resists**
containing vinyl lactam derivs.)
- IT Photolithography
(submicron; **chemical amplified resists**
containing vinyl lactam derivs.)
- IT 159296-87-4P, tert-Butyl **acrylate**-p-hydroxystyrene
copolymer 174476-25-6P, p-Acetoxystyrene-tert-Butyl
acrylate copolymer 188172-96-5P, 3-(t-Butoxycarbonyl)-
1-vinylcaprolactam homopolymer 194992-03-5P,
3-(t-Butoxycarbonyl)-1-vinylcaprolactam-tert-butyl **acrylate**
-p-acetoxystyrene **copolymer** 194992-04-6P,
3-(t-Butoxycarbonyl)-1-vinylcaprolactam-tert-butyl **acrylate**
-p-hydroxystyrene **copolymer**
RL: SPN (**Synthetic preparation**); TEM (Technical or engineered
material use); PREP (**Preparation**); USES (Uses)
(**chemical amplified resists** containing
vinyl lactam derivs.)
- IT 109-72-8, n-Butyl lithium, uses 865-47-4, Potassium tert-butoxide
RL: CAT (Catalyst use); USES (Uses)
(preparation of **chemical amplified resists** containing
vinyl lactam derivs.)
- IT 74-86-2, Acetylene, reactions 105-60-2, ϵ -Caprolactam, reactions
24424-99-5, Di-tert-butyldicarbonate
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of **chemical amplified resists** containing
vinyl lactam derivs.)
- IT 2235-00-9P, 1-Vinylcaprolactam 188172-95-4P
RL: RCT (Reactant); SPN (**Synthetic preparation**); PREP
(**Preparation**); RACT (Reactant or reagent)
(preparation of **chemical amplified resists** containing
vinyl lactam derivs.)

L26 ANSWER 57 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:383568 CAPLUS
DOCUMENT NUMBER: 127:26084
TITLE: Radiation-sensitive resin compositions for
chemically amplified resists
INVENTOR(S): Natsume, Norihiro; Tominaga, Tetsuo; Suzuki,
Masamutsu; Isamoto, Yoshitsugu
PATENT ASSIGNEE(S): Japan Synthetic Rubber Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

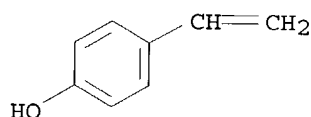
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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 JP 09090635 A2 19970404 JP 1995-264693 19950920
 PRIORITY APPLN. INFO.: JP 1995-264693 19950920
 AB Claimed articles are pos.-working compns. comprising (A)
 halocycloalkanesulfonates or halocycloalkenesulfonates X_nZOSO_2R (Z =
 cyclic group having (n + 1) valency and containing C3-20 cycloalkyl and/or
 cycloalkenyl; X = halo; R = organic group; n = 1-30) as radiation-sensitive
 acid-generating agents and (B) (1) alkali-insol. resins protected by
 acid-dissociative group to become alkali-soluble resins or (2) alkali-soluble
 resins and alkali-solubility controlling compds. to be decomposed by acids.
 Also
 claimed articles are neg.-working compns. comprising said acid generators,
 alkali-soluble resins, and compds. to crosslink the alkali-soluble resins in
 the
 presence of acids. The compns. provide high resolution, sensitivity, stable
 pattern formation and are suitable for semiconductor device manufacture
 IT 159296-87-4P, tert-Butyl acrylate-p-vinylphenol
 copolymer 168274-87-1P, Tert-butyl acrylate
 -p-isopropenylphenol copolymer 182930-98-9P,
 Di-tert-butyl fumarate-p-vinylphenol copolymer
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (radiation-sensitive resin compns. containing halocycloalkanesulfonates for
 chemical amplified resists for)
 RN 159296-87-4 CAPLUS
 CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol
 (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

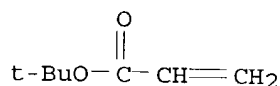
CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



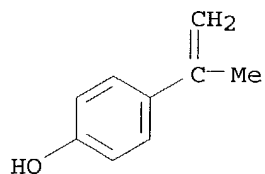
KOROMA EIC1700

RN 168274-87-1 CAPLUS
 CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with
 4-(1-methylethenyl)phenol (9CI) (CA INDEX NAME)

CM 1

CRN 4286-23-1

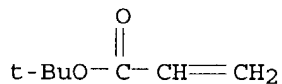
CMF C9 H10 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



RN 182930-98-9 CAPLUS

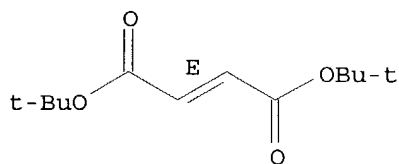
CN 2-Butenedioic acid (2E)-, bis(1,1-dimethylethyl) ester, polymer with
 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 7633-38-7

CMF C12 H20 O4

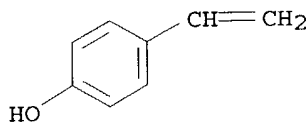
Double bond geometry as shown.



CM 2

CRN 2628-17-3

CMF C8 H8 O



- IC ICM G03F007-039
ICS G03F007-004; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 37, 76
- ST halocycloalkanesulfonate acid generator **chem amplified resist**; halocycloalkenesulfonate radiation sensitive acid generator **resist**
- IT **Resists**
(pos.-working; radiation-sensitive resin compns. containing halocycloalkanesulfonates for **chemical amplified resists**)
- IT Negative **photoresists**
(radiation-sensitive resin compns. containing halocycloalkanesulfonates for **chemical amplified resists**)
- IT Semiconductor devices
(radiation-sensitive resin compns. containing halocycloalkanesulfonates for **chemical amplified resists** for)
- IT 190074-24-9P 190074-25-0P 190074-26-1P 190074-27-2P
RL: MOA (Modifier or additive use); PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; **USES** (Uses)
(acid generator; radiation-sensitive resin compns. containing halocycloalkanesulfonates for **chemical amplified resists**)
- IT 358-23-6, Trifluoromethanesulfonic anhydride 421-83-0, Trifluoromethanesulfonyl chloride 56207-45-5, 2,2,6,6-Tetrachlorocyclohexanol 190074-28-3 190074-29-4 190074-30-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(halocycloalkanesulfonate from; for radiation-sensitive **resist** compns.)
- IT 5292-43-3DP, tert-Butyl bromoacetate, reaction products with polyhydroxyphenol 24424-99-5DP, Di-tert-butyl dicarbonate, reaction products with polyhydroxyphenol 59269-51-1DP, Polyhydroxystyrene, buthoxycarbonyl-substituted
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; **USES** (Uses)
(radiation-sensitive resin compns. containing halocycloalkanesulfonates for **chemical amplified resists**)
- IT 159296-87-4P, tert-Butyl **acrylate**-p-vinylphenol **copolymer** 168274-87-1P, Tert-butyl **acrylate**-p-isopropenylphenol **copolymer** 182930-98-9P, Di-tert-butyl fumarate-p-vinylphenol **copolymer**

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(radiation-sensitive resin compns. containing halocycloalkanesulfonates for **chemical amplified resists** for)

L26 ANSWER 58 OF 58 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1995:947228 CAPLUS

DOCUMENT NUMBER: 124:57046

TITLE: Manufacture of vinylphenol **copolymers** for **chemically amplified photoresists**

INVENTOR(S): Yamachika, Mikio; Kobayashi, Hidekazu; Oota, Toshuki; Tsuji, Akira

PATENT ASSIGNEE(S): Japan Synthetic Rubber Co Ltd, Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07233222	A2	19950905	JP 1994-255811	19941020
PRIORITY APPLN. INFO.:			JP 1993-336599	19931228

AB Title **copolymers** are manufactured in high yields and with less byproducts by radical **copolymn.** of vinylphenol (I) in the presence of ethylphenol (II). Thus, 120 g a mixture containing 20% p-I and 65% p-II was treated with tert-Bu **acrylate** 17, propylene glycol monomethyl ether 50, and IBN 1.9 g at 40° for 7 h to give 55% **copolymer** (Mw/Mn = 1.8) with 78% transparency. A photoresist composition containing the **copolymer** formed a high-resolution pattern.

IT 172335-57-8P

RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(manufacture of vinylphenol **copolymers** in presence of ethylphenol for **chemical amplified photoresists**)

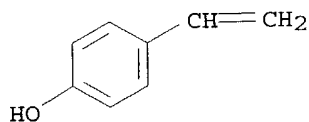
RN 172335-57-8 CAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 4-ethenylphenol and 1(or 2)-methoxypropanol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

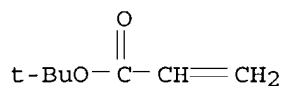
CMF C8 H8 O



CM 2

CRN 1663-39-4

CMF C7 H12 O2



CM 3

CRN 1320-67-8

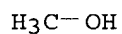
CMF C4 H10 O2

CCI IDS

CM 4

CRN 67-56-1

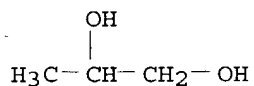
CMF C H4 O



CM 5

CRN 57-55-6

CMF C3 H8 O2



IC ICM C08F212-14

ICS C08F002-44

ICA C08F220-18

CC 35-4 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 74

ST vinylphenol **copolymer** manuf ethylphenol; **chem**
amplified photoresist vinylphenol **copolymer**

IT **Resists**

(photo-, manufacture of vinylphenol **copolymers** in presence of
ethylphenol for **chemical amplified**
photoresists)

KOROMA EIC1700

- IT Polymerization
(radical, manufacture of vinylphenol **copolymers** in presence of
ethylphenol for **chemical amplified**
photoresists)
- IT 172335-57-8P
RL: IMF (Industrial manufacture); TEM (Technical or engineered
material use); PREP (Preparation); USES (Uses)
(manufacture of vinylphenol **copolymers** in presence of ethylphenol
for **chemical amplified photoresists**)
- IT 123-07-9, p-Ethylphenol 25429-37-2, Ethylphenol
RL: NUU (Other use, unclassified); USES (Uses)
(manufacture of vinylphenol **copolymers** in presence of ethylphenol
for **chemical amplified photoresists**)

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